

Vermont Department of Public Service Biennial Report

July 1, 1998 - June 30, 2000

January 2001



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List of Referenced Web Sites

DPS Web Site	http://www.state.vt.us/psd/indexpsd.htm
CBES Project	http://www.state.vt.us/psd/ee/ee19.htm
Consensus Residential Ventilation Standard	http://www.state.vt.us/psd/RBESUpdt/Report.pdf
Consumer Affairs & Public Information Division (CAPI)	http://www.state.vt.us/psd/ci.htm
Consumer Matters - CAPI	http://www.state.vt.us/psd/ciConsumerMatters96_98.PDF
Distributed Utility Planning: An Introduction to Concepts and Issues	http://www.state.vt.us/psd/ee/EEUeval/EvalHome.htm
Efficiency Vermont	http://www.efficiencyvermont.com/
Energy Efficiency Improvements to Low Income, Multi-family Housing	http://www.efficiencyvermont.org/programs/reep.htm
Energy Efficiency Division	http://www.state.vt.us/psd/ee/ee.htm
Energy Guidelines for Typical C&I Buildings	http://www.state.vt.us/psd/ee/ee4.htm
Energy Information Administration (DOE)	http://www.eia.doe.gov/cneaf/electricity/esr/t01.txt
Energy Star Appliances	http://www.efficiencyvermont.org/residential.default.htm
Fueling Vermont's Future: Comprehensive Energy Plan and Integrated Resource Planning	http://www.state.vt.us/psd/cepGuide.htm http://www.state.vt.us/psd/ee/Ee3.htm
ISO New England	http://www.iso-ne.com/main.html
School Energy Management Program (SEMP)	http://www.state.vt.us/psd/ee/ee1.htm
Vermont School Wood Chip Use	http://www.state.vt.us/psd/ee/ee2.htm#ee2a
Vermont Star Homes, the State's Residential New Construction DSM	http://www.efficiencyvermont.org/programs/vtstarhomes.htm
Vermont Telecommunications Plan	http://www.state.vt.us/psd/tel00.htm
VTAC	http://www.vtac.org

INTRODUCTION

The Department of Public Service (Department or DPS) is charged with representing the public interest in utility cases before the Public Service Board, federal regulatory agencies, and state and federal courts; providing long range planning for the state's energy needs through the *Vermont Electric Plan* and through comprehensive energy planning; ensuring all Vermonters share in the benefits of modern communications through the *Vermont Telecommunications Plan*; promoting energy efficiency; administering federal energy programs; resolving utility customer complaints; and making and administering contracts for the purchase of power on behalf of the state.

The Department's mission is to serve all citizens of Vermont through public advocacy, planning, programs, and other actions that meet the public's need for least cost, environmentally sound, efficient, reliable, secure, sustainable, and safe energy, telecommunications, and regulated utility systems in the state for the short and long term. The Department does this by:

- < promoting the interest of the general public in the provision of the state's regulated public services--electricity, natural gas, telephone, cable television, and to a limited degree, water and wastewater;
- < ensuring that the state's telecommunications infrastructure can support a diversified set of services that address the current and potential needs of the state's residents and business entities; and
- < protecting the public health and safety and ensuring that safety regulations established by federal and state government for nuclear facilities, natural gas, and certain types of propane installations are met.

Under 30 V.S.A. ' 24, the Department is required to prepare a Biennial Report for the General Assembly. Biennial Reports have been required since 1855, when the legislature provided for the appointment of a railroad commissioner (No. 26 of the Acts of 1855), giving this commissioner

. . . a limited jurisdiction over the operation of steam railroads with access to the books and accounts of railroad companies operating in Vermont and required such railroads to make annual returns of such character as the commissioner should prescribe. . . . By No. 64 of the Acts of the same session, the commissioner was required to make an annual report to the legislature during the first week of its session. (*Biennial Report of the Public Service Commission of the State of Vermont*, Dec. 1920 - Dec. 1921, 3).

By 1908 the structure of the Commission and its areas of jurisdiction had grown and changed. Under its new name, Public Service Commission, which replaced Board of Railroad Commissioners, the legislature expanded its authority to include jurisdiction over the manufacture and distribution of gas, electricity, telegraph and telephone companies, and sleeping car companies. A few years later, reservoirs and private water companies were added. Since these early years, the Department's organization and responsibilities have continued to evolve. However, since 1855, Biennial Reports to the General Assembly have been prepared, reflecting significant activities and the status of companies under the jurisdiction of the Public Service Commission, which since 1981, has been separated into the Public Service Board and the Department of Public Service.

This Biennial Report describes highlights of the Department's activities over the past biennium - July 1, 1998 through June 30, 2000. Chapter 1 focuses on the Department's services to the citizens of Vermont over the prescribed time period. Chapters 2 through 5 provide information on regulated industries - electric utilities, telecommunications, natural gas, and water and wastewater. For companies in each of these industries, information is presented that reflects current financial status, services provided to Vermont consumers, and rates.

1. DEPARTMENT OF PUBLIC SERVICE ACTIVITIES

A. Public Advocacy Division

The primary purpose of the Department's Public Advocacy Division is to represent the public interest in administrative litigation before the Public Service Board (Board or PSB), covering all areas of the Board's jurisdiction over public service companies or utilities and the conduct of their business. It is also responsible for representing the public interest of Vermont relating to utility matters in all forums where those interests are at stake, such as the Federal Energy Regulatory Commission (FERC), the Federal Communication Commission (FCC), as well state and federal courts.

Public Advocacy is headed by a director, a statutory appointee who is responsible to the commissioner, and six full-time staff lawyers. Other areas within DPS provide experts, such as engineers, economists, or analysts, and support services for Public Advocacy. Outside consultants are hired to help with some cases.

The Public Advocate is a statutory party in all cases before the PSB. Most litigation work done by Public Advocacy has historically been in utility rate cases that determine whether and how much a utility's rates should be changed because of capital investment and operating expenses. Increasingly, the Public Advocacy Division is involved in investigations of equal magnitude and importance and greater complexity involving integrated resource planning (IRP), distributed utility planning (DUP), demand side management (DSM), and issues in the rapidly evolving structure of the utility industry such as deregulation, expanded competition, alternative regulatory plans, access to transmission facilities, and contracts for purchase of power by utilities. Recently, an increase in cases involving telecommunications policy, both in telephone and cable television, has been significant as the data in Tables 1.1 and 1.2 indicate. Public Advocacy is also responsible for review of proposed utility tariff changes, certificates of public good, General Order 45 Notices (electric utility notices regarding power purchases, sales and plant construction), and special contracts and for making a recommendation to the Public Service Board on whether to investigate or approve those filings. In fiscal years 1999 and 2000 there were 1,376 such filings.

In addition to these traditional activities, the move to introduce retail competition in the electric and telecommunication utility industries has brought new concerns about consumer protection and anti-competitive behavior. In this new competitive environment, the Public Advocacy Division has primary responsibility for protecting the consuming public from unscrupulous sales practices. Over the past year, Public Advocacy has worked closely with and provided support to the Consumer Affairs Division on consumer protection issues arising from consumer complaints.

Public Advocacy participates in cases before the Board that pertain to the award of a license or certificate of public good (CPG) that is a prerequisite for companies beginning operations in Vermont or for gas and electric utilities to construct new facilities. The Public Advocate is also required to participate in PSB proceedings on a public service company's request for Board approval to issue stock or take on financing or debt obligations. Public Advocacy represents Vermont citizens and consumers and presents evidence at Board hearings about how the public interest will be affected by actions for which utilities request Board approval. (30 V.S.A. §248 covers new gas and electric purchases, investments, facilities and CPG requirements.)

Another area of Public Advocacy activity relates to the statutory requirement that utilities have approved integrated resource plans (IRPs) and that decisions about supply resources and demand side management (DSM) reflect the principles of least cost planning and consistency with the company's approved IRP. (Table 2.1 shows the current status of utility IRPs.) In accordance with 30 V.S.A. §202(f), DPS makes

determinations about the consistency of utility proposed actions (issuing stocks, bonds or other financings, or purchases) with the *Vermont Electric Plan*.

Public Advocacy also works on cases to enforce public service laws, Public Service Board Orders, and for resolution of significant consumer disputes.

Tables 1.1 and 1.2 show the numbers and types of cases that the Public Advocacy Division has worked on in the past two fiscal years. The number of hours required to complete a case can vary greatly, but this represents the normal workload carried by this Division.

The Public Advocate's charge to serve the public interest is broadly understood to mean the long term interest of all Vermonters in reliable, environmentally and economically sound provision of utility services. A primary concern is to secure the lowest possible rates for ratepayers. The public interest, however, encompasses not only the interests of ratepayers, but all parties affected by utility operations, including other consumers, business and industry, and the state as a whole. What serves the public interest may not be the lowest current rates, but rather rates that assure the safe and reliable provision of adequate service over the long term.

In addition to its work before the PSB, Public Advocacy represents the public interest in a wide variety of cases before the Vermont Supreme Court, appellate courts, and occasionally in Vermont Superior Court. The Public Advocacy Division also represents the public interest of Vermont in matters before the Federal Communications Commission (FCC), the Federal Energy Regulatory Commission (FERC), the Securities and Exchange Commission (SEC), and the Nuclear Regulatory Commission (NRC). These administrative agencies have exclusive authority over crucial utility matters such as interstate telephone, interstate transmission of gas and electricity, nuclear power plant licensing, and wholesale power sales. Representing the public interest of Vermont in the deliberations of these agencies has required the Public Advocacy Division to appear in federal circuit courts in Boston, New York, New Orleans, and Washington D.C. As shown in Table 1.3, cases before these courts and agencies are only a small fraction of the Division's total case load, but they carry major significance.

Table 1.1 Public Advocacy Case Activity by Industry - FY 1999

	Dockets Processed	Non-docket Filings
Public Service Board (total)	319	631
Electric	103	83
Telephone	156	492
Cable TV	29	33
Natural Gas	3	18
Water	28	5

Source: Public Service Board

Table 1.2 Public Advocacy Case Activity by Industry - FY 2000

	Dockets Processed	Non-docket Filings
Public Service Board (Total)	277	745
Electric	93	98
Telephone	148	566
Cable TV	14	58
Natural Gas	7	20
Water	15	3

Source: Public Service Board

Table 1.3 Public Advocacy Case Load - Other Forums

Other Forums	Cases Pending
Vermont Supreme Court	4
Vermont Superior Court	3
Vermont Agencies, FERC, NRC, SEC, U.S. Courts	21

Source: DPS Public Advocacy Division

A substantial part of the legal staff's time involves legal planning, advising, and drafting. This work is performed in anticipation of foreseeable litigation, so that staff lawyers are prepared to react quickly if such a case were to come up. Litigation can often be avoided by timely negotiation. With the assistance of DPS personnel from other divisions, Public Advocacy frequently reviews proposed construction and tariff filings and meets with utility petitioners to discuss possible settlement of disputed issues.

The Public Advocate and other DPS personnel also work to initiate change that is recognized to be in the public interest. An example of this type of activity is the ongoing scrutiny of utility revenue requirements to determine if rates can be reduced. Public Advocacy and DPS technical personnel are working with utilities on economic development contracts for employers who are moving to Vermont and creating jobs. The goal of these contracts is to create new jobs without causing a burden to other customer classes.

The Public Advocate provides in-house legal assistance to DPS. As does any state agency, DPS requires almost daily legal advice on major and minor matters. Lawyers respond to public record requests, they interpret statutes, review and draft bills during the legislative session, and they interpret and explain to DPS personnel the essential steps to follow in federal regulatory requirements.

B. Consumer Affairs and Public Information Division

The Department's Consumer Affairs & Public Information Division (CAPI) facilitates informal resolutions of citizens' complaints against regulated utilities, advocates for policies which protect consumer interests, and educates consumers about utility issues so they can more effectively advocate for themselves. CAPI handled 6,529 consumer contacts in 1998, and 5,349 consumer contacts in 1999.

The decrease from 1998 to 1999 was the result of the end of a specific public awareness campaign on the introduction of in-state competition in presubscribed long distance service. The public awareness campaign which ended in mid-1998, generated many additional requests for information.

Of the 6,529 consumer contacts handled in 1998, 1,951 (30%) required investigation and therefore were classified as "complaints." In 1999, CAPI changed the way it classifies complaints and it is therefore impossible to compare the 1998 number with 1999. The new complaint tracking system permits the Department to make more effective use of consumer input, regardless of whether the issues of concern to consumers involve utility conduct or simply dissatisfaction with existing public policy. Although the new tracking system provides substantially more information to guide regulatory decision making, until the change has been in place for another year, it is an apples-to-oranges comparison from year to year. The DPS released its summary of consumer complaints and disconnection data in regulated companies and utilities, for the years 1994 - 1998. The summary, *Consumer Matters 1994 - 1998*, may be found at http://www.state.vt.us/psd/ciConsumerMatters96_98.PDF.

Table 1.4 displays the number of complaints by utility type which, following investigation, were found to be justified (except for the 1999 number which is explained in the table footnote). The majority of these complaints concerned utility deposits, service disconnections, service installations, billing problems, quality of service, and repairs. Information regarding consumer matters, including complaint filing procedures can be found at the CAPI Web site <http://www.state.vt.us/psd/ci.htm>.

In 1998, CAPI mediated 1,276 justified complaints, more than 90% of which concerned telephone and electric service. In 1999, the Division handled 1,534 complaints it classified as "interventions." Due to the change in the complaint tracking system implemented on January 1, 1999, this figure cannot be compared directly with the former category, "justified complaints." Interventions are complaints that were investigated and, following investigation, it was determined the company could or should have taken action it did not take prior to the Department's intervention and/or the Department believes a violation of Vermont law or rule occurred. The 1999 figures suggest an increase in electric and cable television complaints, but it will not be possible to compare effectively year over year until the end of a second year using the new tracking system.

The Division successfully resolved 86.9 percent of justified complaints in 1999 and 92.7 percent in 1998. (A resolution is considered successful if the consumer receives all or a portion of the relief he or she is seeking.) The remainder of complaints were either referred to the PSB or no satisfactory resolution was achieved. Actions taken by the Consumer Affairs & Public Information Division saved individual consumers \$249,610 in 1998 and \$125,407 in 1999. The 1998 figure includes a few moderate sized settlements with companies on behalf of groups of consumers and an increase in dollars saved on behalf of single individuals over prior years. The 1999 figure is comprised almost completely of assistance to individuals. Amounts saved ranged from \$.54 to \$9,833, encompassing assistance to 519 consumers. The majority of 1999 refunds (94.8 percent) were less than \$1,000.

Disconnection statistics for 1998 and 1999 reflect downward trends for telephone and electric as shown in Table 1.5. The decline in telephone disconnections is likely the result of new FCC disconnection rules for Lifeline participants introduced in January, 1998, that prohibited disconnection of local service if a

delinquency is due solely to monies owed for long distance service. This prohibition was ultimately adopted for all consumers by the PSB in 1999 in recognition that the industries of toll and local service are increasingly separate in a competitive environment and the leverage to use the local bill as a collections device provides an inappropriate competitive advantage to incumbent local exchange companies.

Table 1.4 Justified Utility Customer Complaints to DPS, 1993-1999

Type	1993	1994	1995	1996	1997	1998	1999*
Telephone	339	442	480	575	578	943	913
Electric	345	387	417	412	254	237	458
Cable TV	98	134	114	79	105	86	144
Natural Gas	19	16	12	10	17	7	17
Water	15	13	12	7	5	3	
Wastewater		4	6				
Other							2
Totals	816	996	1,041	1,083	959	1,276	1,534

* In 1999, DPS instituted a new tracking system that eliminated the term “justified” complaint, since the term minimizes valuable consumer input. The 1999 number in this chart represents complaints that, following investigation, were determined to involve reasonable actions that DPS believed could and should have been taken by the utility and/or violations of law or PSB rules.

Source: DPS Consumer Affairs & Public Information Division

Table 1.5 Utility Service Disconnections, 1991-1997

Type	1993	1994	1995	1996	1997	1998	1999
Telephone	18,073	16,051	19,637	22,142	26,821	20,893	18,964
Electric	8,120	6,826	8,020	8,692	8,076	6,197	4,881
Gas	645	508	477	437	390	378	549

Note: Disconnection statistics are not available for cable TV, water, and wastewater.

Source: DPS Consumer Affairs & Public Information Division

Electric disconnections trended downward sharply in 1998 and 1999, dropping by 44 percent from their 1996 high to 1999. One reason for this drop is a change in billing systems by at least one company that resulted in curtailed disconnection activity during a part of 1999. As a result, it is not expected that the rate will remain as low as the one achieved in 1999.

During the biennial period, CAPI staff participated in an increasing number and range of policy dockets concerning consumer protection. These efforts included increased enforcement activities against slamming and other telecommunications practices that harm consumers, cable consumer protection, payphone regulatory reform, and electric service quality. Among the most significant of these were the combined franchise renewal and “show cause” proceedings concerning Adelphia Cable, as well as the development of the Verizon service quality index in Docket 6167. CAPI also increased its participation in collaborative efforts with other states to address systemic problems with companies that operate in more than one state. Such collaboration is proving increasingly important as Vermont consumers buy goods and services from companies of national and global scope. Without such collective action, it is more difficult for a state as small as Vermont to have a significant impact on company practices. Increased public awareness efforts undertaken during the period included publication of brochures and consumer alerts on several consumer protection topics, a brochure on payphone contracting, and a statewide public awareness campaign on abatement of telemarketing.

C. Planning Division

Preparation of Statewide Plans. The Department's Planning Division is responsible for directing the review of the state's uses and projected needs for several types of service that are considered essential to the “public good,” specifically the state's electric and telecommunications industries. For electricity and telecommunications services, the Planning Division gathers data on past usage and assesses current market conditions, emerging technologies, key indicators of the state's anticipated economic and demographic conditions. In its preparation of these plans, the Planning Division uses several advanced computer simulation models. For economic forecasts, the REMI model is used, and Energy 2020 is used to forecast total energy use. These plans also set out goals and objectives reflecting prior plans, Board Orders, and state statutes, a survey of the current situation, and a set of statewide policies, guidelines, and recommendations to guide future decision making.

In the period covered by this report, the division focused on telecommunications service providers and electric utilities as greater competition, restructuring, and rapidly paced technological change influence these essential services.

An updated final draft *Vermont Telecommunications Plan* was issued in May 1999 and after public comment and review the plan was adopted in August of 2000. It offers a new vision of “electronic community” in Vermont that would enable all citizens to have access to advanced network services and new electronic media in their communities. It also promoted several initiatives to advance public safety and electronic commerce, and presented our positions on promoting competition, interconnection, and universal basic service. This Plan presented current information on the Internet, Congress' Telecommunications Act of 1996, and subsequent FCC interpretations of the Act. A copy of the Plan is at <http://www.state.vt.us/psd/tel00.htm>.

A new edition of the *Vermont Comprehensive Energy Plan* was also adopted during this biennial period, in conjunction with the U.S. Environmental Protection Agency's (EPA) State and Local Climate Change Program. *Fueling Vermont's Future: Comprehensive Energy Plan and Greenhouse Gas Action Plan* was issued as a public review draft in September 1997. After gathering public input, the final version was issued and adopted in August, 1998, (view the Plan at <http://www.state.vt.us/psd/cepGuide.htm>). This Plan presents

information on a wide range of energy resources, as well as Vermont's past and anticipated consumption of different kinds of energy and the anticipated impacts of this energy use over the long term. About 70 policies are analyzed using computer modeling to show how each of these actions could in some way change Vermont's pattern of increasing energy consumption and greenhouse gas emissions. Effects on the general economy are also reported. The public, state government, and the legislature can use the information, policies, and recommended actions in this plan to guide their decision-making about Vermont's long term energy use.

Review of Gas and Electric Purchases, Investments, Sales, and Facilities Proposals. The Planning Division also carried out statutory requirements related to analysis and review of any utility proposal to purchase natural gas, electric capacity, or energy from outside the state (if the contract amount was greater than 1% of the utility's load and the contract period exceeds five years) in accordance with 30 V.S.A. § 248. This statute also requires prior approval of any site preparations or investments in natural gas and electric facilities or transmission lines. The Department's assessment of these utility proposals, along with input from other designated parties and the public, is taken into consideration as the Board determines whether the proposed action will promote the general good of the state. If the Board approves the proposed contract or investment, a certificate of public good (CPG) is issued, allowing the proposal to proceed.

Planning also reviews utility power contract filings required by PSB General Order 45 (GO 45), including contracts that are smaller than 1% of the company's load and cover a period of less than five years. During the period of this report, 27 GO 45 notices were reviewed.

Utilities notify the Department when seeking PSB authority to make investments, issue debt, construct a generation or transmission facility, or make certain purchases of electricity so that the Department can determine whether the proposed action is consistent with the *Vermont Electric Plan* (30 V.S.A. § 202(f)). During the period of this report, Planning completed 30 reviews of this type.

Special Contracts. Planning coordinates with the Economics Division in the review of special contracts. 30 V.S.A. § 229 establishes that no electric, gas, or telephone company may enter a contract or render any special service that is not covered in a current PSB approved rate schedule, without prior approval of the PSB. (See Section 1.F. for more information on special contracts.)

Internal Year 2000 Activities. DPS, like all other federal and state governmental entities, worked during the biennium to ensure that all of its computer systems and facility systems were Year 2000 compliant. The DPS reviewed all of its computer hardware and software to identify any Year 2000 issues. The DPS also contacted the vendors for facility systems such as telephones, heating systems, and the like and conducted selected in house testing to ensure identify any Year 2000 issues. A number of Year 2000 issues were identified in the DPS's computer systems. The Department replaced or retired all systems that can not be fixed and updated all others with software and hardware that vendors certified to be Year 2000 compliant. Working with other state agencies, DPS tested the updated computer equipment and software to verify Year 2000 compliance and provided additional upgrades were needed. The Department also developed contingency plans so that essential services could be provided in the event of unforeseen problems. While significant problems were identified during the inventory phase that would have caused disruption, due to the preparation and remediation carried out during 1999, the Year 2000 rollover at the DPS was uneventful. Investigation of Year 2000 compliance by Vermont utilities is discussed in 2.C.

Review of Utility Integrated Resource Plans. Integrated resource plans (IRPs) that the state's electric and gas utilities prepare, in accordance with the *Vermont Electric Plan*, Board Orders, and 30 V.S.A. § 218c, are reviewed by the Planning and Energy Efficiency Divisions. Least cost integrated planning for energy utilities was made a statutory requirement in 1992 (30 V.S.A. § 218b and c). Each of Vermont's regulated electric utilities and the state's natural gas utility must submit for DPS review and PSB approval an integrated

resource plan (IRP) that documents the utility's long term planning and analysis. A key component of each IRP is the utility's planned portfolio of supply resources, demand side management (DSM) programs, and transmission and distribution improvements that will enable the company to serve its customers at the lowest societal cost over the next 20 years. (See Section 2, Table 2.1 for the current status of Vermont Utility Integrated Resource Plans.)

Litigation Support and Other Activities. The Planning Division also provides litigation support, technical support and expert testimony for other Department activities such as cost studies, calculation of avoided cost rates, economic and policy analyses for major rate cases, forecasts, cases at the FERC and courts, the unpriced external costs of energy services, special studies, and surveys. Information and technical support on issues related to DPS responsibilities are also provided to other state agencies, such as the Agency of Natural Resources, the Economic Progress Council, Department of Finance and Management, Department of Taxes, Environmental Board and the Vermont Legislature. Internally the Planning Division lends technical and analytical support to CAPI, other divisions, and collaborates with the Engineering Division in development and implementation of the Vermont Yankee Emergency Response Plan.

D. Energy Efficiency Division

The Department's Energy Efficiency Division (EED) works to develop policies and programs that increase energy efficiency and the use of renewable energy. The Department initiates, promotes, coordinates, monitors, and reviews a wide variety of policies and programs. In some instances it takes a lead role in implementing them. The Division's main web page is found at <http://www.state.vt.us/psd/ee/ee.htm>.

The EED's primary responsibilities can be summarized as follows:

- < Work with Vermont energy utilities and other parties to propose, design, monitor, evaluate, and review treatment in rates of utility energy efficiency programs.
- < Work with U.S. Department of Energy (DOE) on grant management and implementation of the State Energy Program.
- < Administer Petroleum Violation Escrow (PVE) funds.
- < Review energy usage and efficiency features of Act 250 permit applications under Criteria 9 (F) and (J).
- < Propose, help update, and implement energy efficiency building codes in both the residential and commercial sectors.
- < Monitor fossil fuel supply and price and make proposals for improved supply and efficiency, including proposals related to transportation energy efficiency and alternative-fuel vehicles.
- < Prepare, update and, if necessary, help implement Vermont's Energy Emergency Plan
- < Gather, update and distribute consumer information and educational resources on energy issues.
- < Coordinate with other state agencies to reduce the cost and environmental impact of the State's own energy use.
- < Propose, design and help implement programs to promote development of renewable energy technologies.

Within the Department, the EED works closely with the Planning Division on the *Vermont Electric Plan* at <http://www.state.vt.us/psd/20yp94.txt>, the *Vermont Comprehensive Energy Plan* at <http://www.state.vt.us/psd/cepGuide.htm>, and on Integrated Resource Planning issues at <http://www.state.vt.us/psd/ee/Ee3.htm>. It works with the Planning and Engineering Divisions on Distributed

Utility Planning and with the Economics Division and the Public Advocacy Division on matters related to rate cases and other litigated proceedings.

The EED works with Vermont utilities, other state and federal agencies, businesses, institutions, non-profits, and advocacy groups. The EED also serves as an advocate for energy efficiency and renewable energy in local, state, regional, and national forums.

The U.S. Department of Energy, through its State Energy Program (SEP) provides state Energy Offices with grant funding for a variety of energy-related activities. The EED is the Division within the Department that has primary responsibility for managing grants and conducting activities related to the Department's role as Vermont's Energy Office.

Demand Side Management Programs. Vermont's 22 electric utilities and one natural gas company are required by Vermont law and regulation to assist all customer classes in using energy more efficiently. This requirement is a part of their obligation to provide energy services to customers at the lowest present value life cycle cost, including environmental and economic costs through a strategy combining investments and expenditures on energy supply, transmission and distribution capacity, transmission and distribution efficiency, and comprehensive energy efficiency programs (30 V.S.A. § 218c).

Historically Vermont's energy utilities have sought to meet this obligation by planning and delivering demand side management (DSM) programs that is, programs that help customers make investments that will increase the efficiency of their energy use.

This long-standing policy has served Vermont well, providing economic, environmental, and social benefits to the state, to Vermont utilities and to utility customers. It helps to make energy services more affordable for homes, businesses and institutions, increasing the quality of life for families and the competitiveness and stability of commercial energy users. DSM can reduce the need for energy production as well as for transmission and distribution investments and it lowers generation-associated environmental impacts. Some DSM programs are designed to serve low-income customers and other populations in ways that increase the effectiveness of other public policy programs.

In March of 2000, Vermont became the first state in the nation to have most electric energy efficiency programs administered by a statewide entity funded through an energy efficiency charge (EEC) on ratepayer bills.¹ Efficiency Vermont (EVT), the contractor serving as the state's energy efficiency utility (EEU), delivers a set of seven statewide core energy efficiency programs to all customers in the state.² Efficiency Vermont is a not-for-profit, private corporation serving under contract to the PSB. Since it began operations in March, 2000, EVT has commenced full implementation of the following programs:

- < Residential New Construction Program;
- < Efficient Products Program;
- < Residential Low Income Single-Family Program;
- < Residential Low Income Multi-Family Program;
- < Farm Program;

¹Vermont Gas, Vermont's only regulated gas utility, continues to provide its own energy efficiency programs.

²Burlington Electric Department delivers the same core programs within its service territory, in close coordination with EVT.

- < Commercial Energy Opportunities Program (serving both new construction and equipment replacement/renovation/remodeling markets); and
- < Customer Credit Program;

Emerging Markets Programs in both the residential and commercial/industrial sectors have been planned for implementation in 2001.

Efficiency Vermont's Web site can be found at <http://www.encyvermont.com>. Its toll-free number is: 1 (888) 921-5990.

A report submitted by EVT to the PSB in October, 2000, indicated that EVT's programs had successfully built upon previous utility program efforts and are now being delivered statewide. Programs are beginning to generate significant savings for participants and new approaches to marketing and outreach to customers are facilitated by the statewide structure of EVT.

The creation of EVT is the culmination of many years of effort by the DPS and was the direct result of thoughtful negotiation among Vermont's electric utilities and the Department. In the course of a few short months in 1999 a Memorandum of Understanding (MOU), agreeing to the creation of an Energy Efficiency Utility (EEU) was signed by all parties to Docket No. 5980; legislation was enacted authorizing the PSB to create an EEU and to assess a charge on customer bills to fund it; and utilities and the Department entered into a transition planning process to guide the selection of a contractor to become the EEU and to provide for a smooth transition to the new entity.³

A Request For Proposal was issued by the PSB in the fall of 1999, and a team led by Vermont Energy Investment Corporation of Burlington, Vermont was selected from a field of six bidders early in 2000.

The contract between the PSB and EVT is for a term of three years (2000-2002) with the possibility of renewal for an additional three years. The contract includes a performance incentive which is tied to numerous specific requirements, including milestones, program goals (including electric energy savings and other resource benefits) and other market effect indicators that EVT will have to meet in order to claim the full level of incentive available to them.

Over the three years of the contract, EVT will secure significant benefits in energy savings and administrative efficiency for Vermont ratepayers.

The creation of the efficiency utility is changing the role of the DPS and EED in two ways. First, there will be a significant reduction in DSM-related electric utility regulatory review and litigation. While the Department retains its responsibility under Vermont law and regulation to assure that investments in energy efficiency are cost-effective and comprehensive, it now has to review the activities of a single statewide entity, not the highly variable activities of 22 electric utilities.⁴ Historically, utility DSM program design, implementation effectiveness, and cost recovery issues have been litigated before the Board, sometimes in

³Docket No. 5980 was opened by the Board in the spring of 1997, after the Department filed its proposal for statewide delivery of seven core DSM Programs. That proposal was entitled: *The Power to Save: A Plan to Transform Vermont's Energy Efficiency Markets*.

⁴To be cost effective, efficiency investments must be less costly than investments in new supplies of energy to provide the same level of service. To be comprehensive, these programs must reach all eligible customers and acquire the full potential for energy savings.

Integrated Resource Plan proceedings, sometimes in generic dockets, and most often in individual utility rate cases. At times the level of controversy associated with DSM program delivery has been significant. The current arrangement reduces the need for litigation by having a single entity deliver a set of agreed-upon programs, by having that entity hired for the sole purpose of delivering efficiency programs, and by having it regulated through a contract with clear performance standards.⁵

**Table 1.6 Statewide Core Efficiency Programs Projections
for Three Year period 2000-2002**

	Three Year Budget 2000-2002	Projected Annualized Mwh Savings	Savings as Percent of Total MWh
Efficiency Vermont (EVT)	\$27,035,970	84,603	
Burlington Electric Department (BED)	\$ 1,627,099	4,632	
WEC Residential New Construction	\$ 165,000	138	
Total	\$28,828,069	89,373	1.6%

Note: Burlington Electric, Washington Electric Cooperative (WEC), Vermont Electric Cooperative, and Citizens Utilities continue implementing discretionary “retrofit” efficiency programs. Projections for those efficiency programs are not included in the numbers above. Source: Energy Efficiency Division

The second change for the Department under the current arrangement is that it is now charged with a significant new role in relationship to EVT; it conducts the formal evaluation of energy efficiency program performance and markets previously carried out by electric utilities as a part of their DSM implementation responsibility.

Providing formal efficiency program evaluation is consistent with the Department’s overall responsibility for public advocacy and planning. Instead of reviewing and critiquing utility evaluations of their own program implementation activities, the Department will design and conduct those evaluations itself and thus be directly informed about program performance and effectiveness.⁶ In addition, the Department can put the data from evaluation and market characterization efforts to immediate and effective use to support and improve its planning and forecasting efforts. Information on the evaluation effort can be found on line at <http://www.state.vt.us/psd/ee/EEUeval/EvalHome.htm>.

⁵This innovative approach to delivering energy efficiency programs has gained significant attention nationally from utilities, regulators, and public advocates alike.

⁶The benefit of having a single entity delivering a set of statewide programs is repeated here, as evaluation efforts can, for the first time, be statewide in nature, avoiding the duplication and waste that resulted from utility-by-utility evaluation activities.

On balance the work load of the EED remains constant, but the work itself is much more focused on learning better how Vermont's energy efficiency markets function and how energy efficiency programs can serve Vermont's ratepayers, economy and environment effectively.

Distributed Utility Planning. The MOU in Docket No. 5980 also included an agreement between the Department and Vermont electric utilities that these utilities continue to have responsibility for implementing the principles of least cost planning in situations where targeted investments in efficiency, generation, or both can cost-effectively avoid or defer capital investments in distribution and transmission infrastructure.

In the MOU a set of Guidelines for how utilities should proceed in conducting and implementing Distributed Utility Planning (DUP) was agreed upon as the starting point for a Collaborative process between utilities and the Department.⁷ The goal of this Collaborative was to define further the protocols for carrying out DUP. In late 1999 and early 2000 the Department and Vermont utilities met five times on the topic of Distributed Utility Planning. Although agreement on the details of Distributed Utility Planning was not reached, parties clarified concerns and the issues that need resolution. The Department and many of Vermont's electric utilities have agreed to a second round of collaborative negotiations to advance the level of understanding and agreement on the conduct of DUP. The EED works closely with both the Engineering and Planning Divisions in the DUP process.

The investigation into DUP offers an avenue to explore a number of important issues likely to affect Vermont utilities in the future, including: 1) the impact of new distributed generation technologies on the utility system as a whole, involving safety, reliability and supply issues; 2) the role of utilities in working with their customers to address issues beyond the traditional function of selling power; and 3) the new roles customers may play as energy producers, as well as energy consumers.

The Department's paper, *Distributed Utility Planning: An Introduction to Concepts and Issues*, is available at <http://www.state.vt.us/psd/ee/EEUeval/EvalHome.htm>.

Grant Writing and Grant Management. The Energy Efficiency Division secures benefits for the state economy and supports energy efficiency, economic development, and environmental improvement through its acquisition and administration of non-state grant funds. These funds are used to increase the energy efficiency of consumers, to develop innovative projects that demonstrate new renewable energy and efficiency technologies, and to reduce the market barriers faced by many potentially beneficial energy efficiency and renewable energy options.

Petroleum Violation Escrow (PVE) funds or, as they are sometimes called, "oil overcharge funds" are made available to states as the result of federal litigation following the time of oil shortages and oil company overcharges to customers in the 1970's. These funds are used in a manner that provides some level of benefit to those originally injured by the overcharges. They have been used to promote energy efficiency, renewable energy and energy security.

⁷Distributed utility planning (DUP) is a concept in which modular electrical generation and storage technologies, and specifically targeted demand-side (DSM) programs (collectively "distributed resources"), are strategically sited and operated to supplement central station generation plants and the transmission and distribution (T&D) grid for the purpose of cost-effectively obtaining both location-specific and system-wide customer benefits. Applicable generation technologies include small-scale internal combustion engine-generator sets, small gas turbine generators and microturbines, energy storage systems, and a number of "clean" generation technologies including photovoltaics, wind turbines, and fuel cells. The benefits obtained from DUP can include reducing the loading of T&D systems, thereby avoiding or deferring major equipment upgrades; improving local power quality; reducing T&D system losses; and, given the shorter lead times and the modularity of the technologies involved, reducing the risk and cost of generation and T&D over-capacity by more closely matching electrical supply to demand.

A key to EED success has been its ability to leverage resources through coordination with others and an approach to problem solving that seeks to address multiple problems with integrated solutions that are appropriate in both scope and scale. A number of the activities undertaken with grant funds and PVE funds have helped Vermont become a nationally recognized leader and innovator in energy efficiency and renewable energy.

In the past, a major focus of EED grant writing has been on efforts to improve and increase the consistency of utility DSM program design. The DPS has secured DOE grants to develop and propose innovative DSM program approaches, to increase the comprehensiveness of DSM programs and to coordinate them with code-related initiatives.

With EVT in place, a major focus of DPS grant writing will be to find sources of funds to build upon the efforts of EVT by promoting an all-fuels approach to the delivery of energy efficiency, by further integrating code implementation and code revision with EVT program delivery, and by targeting innovative efficiency strategies to customers and market segments that are under-served.

The next two sections summarize how the DPS's integrated approach to grant writing, review of projects under Act 250's energy Criteria 9 (F) and (J), code development work, and DSM program design promotes ongoing efficiency gains in the Residential and Commercial/Industrial sectors.

Commercial and Industrial Customers

- < Now that EVT is in place, builders, designers, developers commercial/industrial customers throughout the state have a consistent set of electric efficiency services available as they design and build new buildings, replace equipment, and undertake renovation and remodeling projects. In cooperation with DPS, the EVT Commercial Energy Opportunities (CEO) program has developed statewide program delivery strategies including the establishment of C&I Act 250 Guidelines and an Act 250 inspection program.
- < The Department has continued its efforts to streamline the Act 250 review process for C&I projects under criteria 9 (F) and 9 (J). The procedures include ongoing coordination and clarification of roles between the DPS and EVT, improved coordination with the Agency of Natural Resources Interagency Review Process, as well as implementation of the Vermont Consolidated Act 250 Energy Guidelines for Typical C&I Buildings. These measures are part of an ongoing project to improve the consistency and predictability of the Department's review of C&I development projects. The guidelines are available at <http://www.state.vt.us/psd/ee/ee4.htm>.
- < EED has secured U.S. Department of Energy (DOE) funding for a project to develop Commercial Building Energy Standards (CBES) in Vermont. This effort is designed to proceed in close partnership with the state's engineering, building design and construction community through a variety of forums, presentations and workshops to reach a general consensus on state-wide minimum efficiency standards for commercial new construction in the state.

Many stakeholders from these meetings have joined a CBES Working Group to guide further development of Vermont standards which utilize national model energy codes (IECC 2000 and ASHRAE 90.1-99) as appropriate for Vermont. Members of the CBES Working Group met more than a dozen times during 1999 and 2000 and developed a number of work products to guide and support the development and adoption of commercial energy standards as well as the CBES enabling legislation introduced to the Vermont legislature in early 2000.

The CBES Working Group continued to provide input to the CBES development process throughout 2000 as Vermont-specific amendments to the model energy codes were refined to support the use of the CBES by ACT 250 applicants and as a basis for updating the City of Burlington Guidelines for Energy Efficient Construction, last adopted by Burlington in 1991. The DPS established a CBES project web site and has participated in regional and national commercial energy code conferences and committees to advance the coordination of energy codes among neighboring states, the northeast and at the national level. Information on this effort is available at <http://www.state.vt.us/psd/ee/ee19.htm>.

- < DPS was a founding member of the Northeast Regional Industrial Collaborative. The Collaborative has been granted funds from DOE's Office of Industrial Technologies for two years. State energy officials from the New England states and New York hold regular workshops and meetings to improve cooperation on commercial and industrial energy efficiency projects throughout the region. The Collaborative seeks to work to coordinate the delivery of energy efficiency and waste reduction services to targeted industries in the region.
- < The Department routinely sponsors technical workshops on energy technologies for commercial and industrial energy consumers. Recent events have included the use of Vermont Interactive Television to bring national satellite teleconferences to a number of locations around the state. Recent workshops have addressed topics such as industrial motor efficiency, adjustable speed drives, compressed air systems and the next generation of model energy codes.
- < In November of 1998, the Department and the New Hampshire Energy Office co-sponsored a conference on Combined Heat and Power (CHP) or, as it is sometimes called "cogeneration." These terms refer to energy systems -- generally of modest scale -- that generate electricity in large institutional, commercial or industrial facilities, using the excess heat produced by generation to meet space and hot water heating requirements. If carefully designed, such systems can dramatically increase the overall efficiency of energy use. The response to the conference was enthusiastic, with over 200 participants attending and many exhibitors displaying their products.

There has been steadily increasing interest in CHP in Vermont since that conference and the Department continues to monitor the evolution of CHP technologies, including fuel cells, microturbines, innovative applications of reciprocating engines. Some of these technologies will be addressed in the DUP collaborative, in renewable energy R&D efforts (see discussion of the Biomass Energy Program, below) and increasingly in response to proposals by customers who seek to include CHP applications in new buildings and building expansions.

- < School Energy Management Program (SEMP) - <http://www.state.vt.us/psd/ee/ee1.htm> a project of the Vermont Superintendents Association developed and supported by the EED, works with local school officials to save energy. This program represents an innovative, customer-focused approach to delivering energy efficiency services. Because SEMP is a part of the Vermont Superintendent's Association it has a high level of "ownership" by decision makers who have a great deal of input to the design, construction and renovation of Vermont schools. Through this program, expert energy efficiency services have been provided regularly to Vermont schools and school managers.

Efficiency Vermont has negotiated a contract with SEMP to provide outreach and analytical services to schools as a part of its CEO program. Prior to the establishment of EVT, SEMP's relationship with the 22 electric utilities varied greatly. Under the new relationship to EVT services are uniform around the state. SEMP was successful in facilitating the transition from individual utility programs to EVT delivery of the statewide program. SEMP now offers routine technical assistance, project scoping, development and management, and coordination of incentives for all Efficiency Vermont school projects.

Through partial funding by the Department, SEMP is able to provide assistance in all energy areas, thereby offering a comprehensive package of services to schools. Through the combined efforts of the DPS and the Department of Education, SEMP is now involved in all school construction project preliminary plan reviews. In addition, SEMP has taken an active role in Department of Education school construction and food service seminars.

SEMP also continues in its role as workshop and information coordinator for schools which use, or are considering using, wood chips for heat. An October, 2000, school wood chip conference was attended by representatives of schools that currently heat with wood chips, schools that may utilize wood chips in the future and other interested institutions in New Hampshire and Massachusetts.

- < EED staff is a resource to other state agencies to help promote energy efficient product purchases, energy efficient building design, renewable energy investments and alternative-fuel vehicles. EVT has begun to develop a consistent statewide partnership with Buildings and General Services to help promote energy efficiency practices.

Residential Customers

- < The Residential Building Energy Standards (RBES or Code), adopted by the Vermont Legislature in 1997, is helping to assure a basic level of energy efficiency in new homes. Since its inception, the DPS has sponsored education and outreach efforts to inform town officials, builders, developers, financial institutions, suppliers, and other interested parties about the code. This effort has been largely successful, as demonstrated by the following indicators:
 1. The private sector, primarily local building supply stores and other material suppliers have sponsored five times the number of code training workshops originally planned under the DOE grant that helped with DPS implementation of the RBES. In total, over 800 builders and trade allies attended these workshops
 2. Activity levels at the Energy Code Assistance Center (ECAC), which operates under contract with the DPS, have declined as general awareness about the code increases.⁸
 3. As a result of DPS outreach, other organizations are helping to educate consumers and builders about the code. The Vermont Banker's Association, for example, in cooperation with the ECAC, has developed a tri-fold brochure on the Code for consumers. Some banks have gone even further, and are including Code information in their loan applications or closing packets.

The Code update process, as required by the legislature, has been another focus of EED activity this biennium. Working in close cooperation with the Department of Labor and Industry (DLI), the state agency responsible for adopting Code revisions, the DPS convened and supported a collaborative process involving representatives from all affected constituencies. The outcome of a series of seven committee meetings and several sub-committee meetings is a draft report to DLI that includes a consensus residential ventilation

⁸The ECAC, located at Vermont Energy Investment Corporation, now refers builders directly to the EVT statewide Residential New Construction program which helps builders comply with and improve upon efficiency levels required by the code.

standard. This document is available at <http://www.state.vt.us/psd/RBESUpdt/Report.pdf> or in printed form from the Department.

- < Vermont Star Homes, the state's residential new construction DSM program is now a part of EVT. This program, which was designed in significant part by EED staff and was previously available in only six utility service territories, can now help all Vermonters build new and renovated homes that are affordable, comfortable, durable, healthy, safe and more valuable. As of March 15, 2000, (EVT's start-up date) the program had enrolled 2098 homes, or roughly 45% of the eligible market. Participants had completed 1,215 homes, saving an average of 1,119 kWh annually. The total annual savings from the program was 1,359 MWh. For more information on this program, <http://www.encyvermont.org/programs/vtstarhomes.htm>.
- < In 1997, the EED and the Department of Social Welfare cooperated to acquire a \$880,497 grant from the U.S. Department of Health and Human Services through the Residential Energy and Assistance Challenge Option Program (REACH). The purpose of this grant is to increase energy affordability and self-reliance for low-income consumers in current and future energy markets. Since the state accepted the grant in July, 1998, the REACH project has:
 1. Completed an Energy Services Delivery pilot project in conjunction with Ultramar Energy to determine what energy services consumers are interested in, what they would be willing to pay for these services, and what it costs to provide these services. Information from this pilot has helped to refine the program design.
 2. Developed and maintained an Energy Case Management Pilot. This project is serving low income customers with information, education, planning assistance, coordination with and referrals to other service providers. The goal of this project is to determine the types of services that are most effective in helping low-income households manage their energy bills and find ways to provide those services.
 3. Incorporated the Vermont Consumers' Energy Cooperative (Consumerco). Consumerco will offer comprehensive efficiency services, fuel, renewable energy, education, and energy case management to its membership.
 4. Secured additional funding from grants and loans to expand the scope of the project.
 5. The Consumerco purchased a small oil company in the fall of 2000 to serve as a base for developing organizational capacity. No state or REACH grant funds were used for this purchase. Consumerco acquired debt financing from the Cooperative Finance Corporation and private sources as well as a private grant for the purchase.
- < In the residential products market, the EED encouraged all Vermont utilities to participate in the first statewide residential efficiency products program (EPP) during 1999. This program provided rebates to customers for the purchase of efficient lighting products. In addition to offering immediate energy savings this program helped validate the statewide energy efficiency utility model for Vermont utilities. The efficient products program's other successes during the biennium include an extremely successful promotion of efficient clothes washers and the first steps toward development of a dealer network supporting Energy Star appliances across the state. Information on this program is available at <http://www.encyvermont.org/residential.default.htm>.

Under the administration of EVT, the EPP has become an instant statewide success, creating and maintaining a strong statewide network of retailers who carry efficient products, providing mail-order opportunities for hard-to-find products, and promoting a series of successful public outreach efforts at fairs and conventions, as well as a very successful “torchiere turn-in” held in October, 2000, in Chittenden county.

- < EED has been an active participant in regional initiatives to transform the market for energy efficient products and practices. Market transformation focuses on long-term change towards efficiency in addition to the near term energy savings of traditional DSM. Regional efforts in the northeast are facilitated by the Northeast Energy Efficiency Partnership (NEEP). EVT participates in many of these regional efforts, and for the first time Vermont speaks with one voice in the design and management of the NEEP initiatives.

The effectiveness of this new market-wide approach to promoting energy efficiency was demonstrated at the September 1998 introduction of an energy efficient Whirlpool clothes washer. A representative of Whirlpool, the largest U.S. manufacturer of clothes washers, stated that they had introduced an energy efficient washer more quickly because of regional promotions in the northeast and northwest.

- < The Residential Energy Efficiency Program (REEP), initiated in 1997 through a U.S. DOE Rebuild America grant secured by the EED is providing comprehensive auditing, financial packaging, and construction management for energy efficiency improvements to low income, multi-family housing. (More information available at <http://www.encyciencyvermont.org/programs/reep.htm>.)

This innovative program coordinates and leverages investments of the Weatherization Assistance Program (WAP) to provide cost effective comfort and savings for low income households. REEP is a program designed by the DPS, funded by a federal grant, and initially sponsored by several Vermont utilities. Now it has become the Low Income Multi-family energy efficiency program being implemented by EVT.

As of Nov. 1, 2000, REEP had completed 58 projects, installing efficiency measures in 1,572 individual units. Annualized MWh savings from the program to date are 5021. Total investment in energy efficiency is over \$2.75 million dollars, on program expenditures of \$584,000.

- < EVT’s low income single-family program is now partnering with WAP to provide comprehensive thermal and electric efficiency services as well as cost-effective fuel switching to all low income households served by the WAP program.
- < The EED supports the Vermont Energy Education Program (VEEP) through grants, technical assistance, and assistance in coordination with other programs. This program works with teachers and administrators in local school systems. It helps meet their need for energy, environmental, and science content, best teaching practices, and compliance with the VT Framework and Learning Opportunities. In FY 1999-2000 this program served more than 500 students and their teachers in five school districts. One of VEEP’s goals for the coming year is to integrate more closely with the School Energy Management Program (SEMP) and the Building Education for Sustainable Society (BESS) projects described below.
- < The Building Education for Sustainable Society (BESS) project is the result of a coordinated effort of the Departments of Education and Agriculture, the Agency of Natural Resources, and several

non-governmental organizations lead and managed by the EED. In 1999 the EED obtained a grant for \$150,000 from the Environmental Protection Agency to demonstrate the effectiveness of using environmental education to meet overall educational objectives and to build a self-sustaining capacity for environmental education within Vermont schools.

Transportation Energy Use. The DPS has supported EVermont, the state's electric and alternative-fuel vehicle demonstration project, since 1993. The DPS Commissioner is a member of the Board and past Chair. EED staff has helped secure and has managed federal grants, provided logistical support for the program and assisted in program design. As of January 1, 2000, EVermont became an independent non-profit organization. The state maintains close ties with the organization through membership of several agency representatives on the Board of Directors and by means of contractual agreements under which the program manages some of the state fleet of electric and alternative fuel vehicles. Although its mission has been expanded to include all alternate fuel and hybrid vehicles, one of EVermont's most successful projects subsidizes the lease of electric vehicles for municipal use.

In September of 2000 the Department added an important capability to the EED through an agreement with the Agency of Transportation (VTrans) under which VTrans has assigned a transportation planner to the DPS to help it more fully address policies related to transportation energy use. Policy areas that this staff person will deal with include specific transportation strategies contained in the State comprehensive energy plan, *Fueling Vermont's Future*.

Transportation sector energy use has increased from just over one-third of delivered energy in 1976 to over one half as of 1994. Since such a significant proportion of total energy delivered in Vermont is used in the transportation sector, it is important to pay increasing attention to this sector when pursuing energy efficiency, economic health and reductions in emissions, including global warming gases.

The new partnership between the DPS and VTrans facilitates deeper involvement by the Department in several specific areas, such as the Burlington *Climate Action Plan* to reduce energy use and greenhouse gas emissions, the Vermont Committee to Ensure Clean Air, the potential of roundabouts to contribute to energy and emissions improvement (as well as to the control of sprawl), and employee incentives to promote van-pooling and ride sharing.

Fossil Fuel Use, Price, Availability. The EED and its predecessor, the State Energy Office, have been monitoring fossil fuel supply and price for over two decades. For the last decade this task required a few hours twice a month during the 6 month heating season. Since the fossil fuel price spike of January 2000, however, EED staff responsibilities have expanded dramatically. Both the Governor's office and the legislature called upon the EED for information and analysis during and after the spike. Media, consumers, and other agencies relied on the EED for accurate and timely information. The EED has also contributed to regional and national deliberations and policy development intended to mitigate the potential impacts of a price spike during the 2000-2001 heating season. All of these activities require significant new effort.

The fossil fuel supply situation will require constant involvement by the EED during the 2000-2001 heating season. Anticipated tasks include: conducting weekly price surveys; weekly coordination with other state governments in the region and the federal government; maintaining close communication with the fuel industry and consumer representatives; ongoing preparation for potential energy emergencies; analysis of markets and trends; and reporting to interested parties including the legislature.

The charts on the following page illustrate some of reasons for this high level of ongoing involvement on the part of the EED. The first chart shows prices, which have not returned to their previous levels since the 1999-2000 winter spike, and in fact, are starting to climb again. The second chart compares distillate fuel stocks in

New England for 1999 and 2000. High price and low stocks as the heating season approaches are just two indicators that cause concern and require ongoing DPS involvement.

Figure 1.1

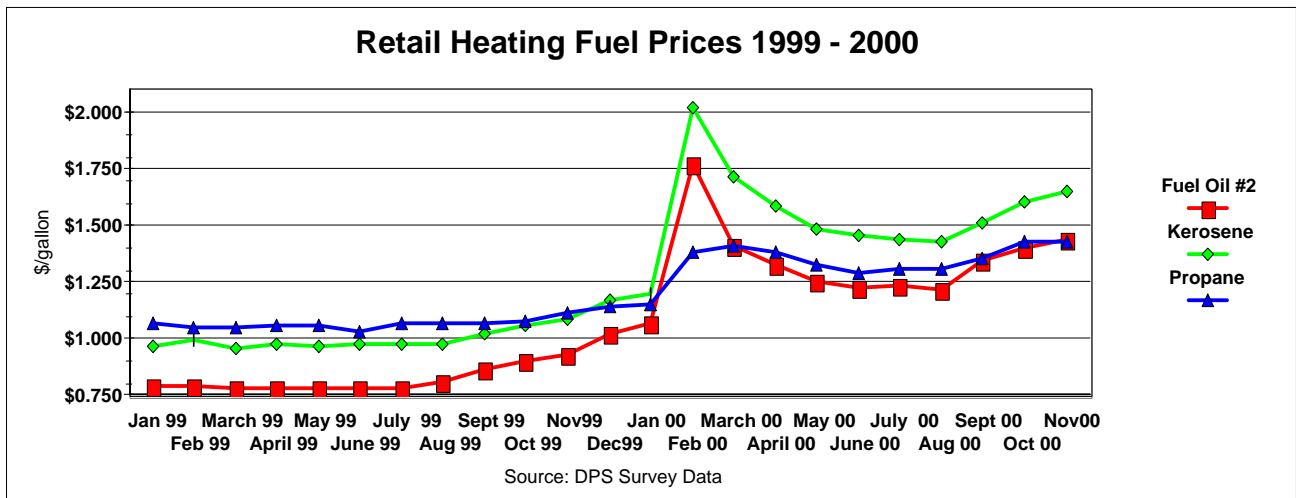
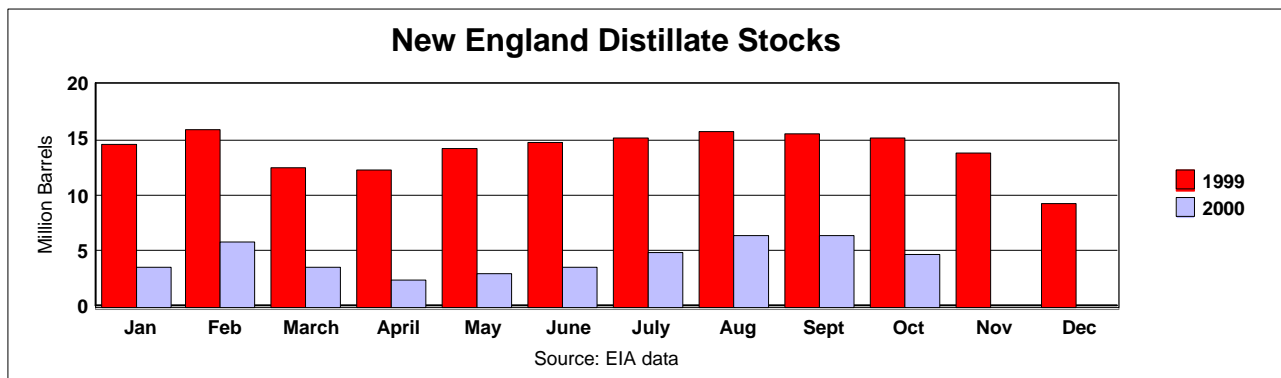


Figure 1.2



Biomass Energy Program. The Biomass Energy Program has been a cooperative effort of the DPS and the Department of Forests, Parks & Recreation (FP&R) for over 20 years. The use of the term “biomass” includes wood and other organic materials with fuel value. Through an MOU between FP&R and the Department of Economic Development the partnership has been broadened to include economic development interests and resources. This collaboration is supported in part by the Northeast Regional Biomass Program (NRBP), a program of the Policy Research Center of the Coalition of Northeast Governors (CONEG). Through the NRBP, the Biomass Energy Program has had extensive involvement with other states and regions, adding to the effectiveness of the Program.

In October, 2000, the NRBP, along with the other Regional Biomass Programs presented an award to the DPS recognizing the Department’s “outstanding achievement in furthering biomass energy.” This award is

presented every other year at the Bioenergy Conference. Participants include energy project developers, researchers, educators, federal and state energy officials. This award is an important measure of the impact and effectiveness of the Vermont Biomass Energy Program.

The primary goals of the Biomass Energy Program are:

- < Support development of new, and improved biomass combustion and associated technologies.
- < Identify opportunities for and support development of biomass energy projects.
- < Develop policies to guide appropriate biomass project development.
- < Develop policies regarding forest resource use for energy.
- < Develop ongoing, cooperative relationships with air quality regulators.
- < Monitor existing biomass energy installations.
- < Monitor forest resources through inventory and ecological indicators.
- < Provide information on technology, fuels, processes, and opportunities to a variety of audiences.
- < Raise awareness of the opportunities offered by biomass energy to the general public as well as a variety of target audiences.

The primary activities of the Biomass Energy Program are:

- < Collaboration with ski resorts on remote generation project development using biomass energy to offset fossil fuels and lower costs of operation (U.S. DOE remote generation grant, discussed below).
- < Collaboration with private industry to develop biomass-fueled combined heat and power projects to offset fossil fuels and lower costs of operation (U.S. DOE combined heat and power grant discussed below).
- < Use of forest resource inventory data and related information to establish indicators of sustainability for consumption of all forest products, including fuel.
- < Survey and report on Vermont residential wood fuel use.
- < Report on school wood energy status and provide support for fuel procurement.
- < Monitor and support the FERCO biomass gasifier experiment located at the McNeil Plant.
- < Develop and disseminate a wide variety of wood energy information materials, including videos, and distribute information through direct mail, responses to requests, television, radio, internet, etc.
- < Participate in NRBP activities.
- < Provide leadership in the development of a Biomass Energy Center - a non-profit entity that will expedite project design and execution.
- < Lead and support the development of biomass district energy through projects in Montpelier and Burlington.

The following discussion focuses on activities of the Biomass Energy Program over the past two years. These activities have built upon activities reported in previous biennial reports by the DPS.

Small-scale Wood Chip Installations. Perhaps the single most dramatic success of the Biomass Energy Program has been the installation of numerous wood energy systems in Vermont schools, businesses and institutions. Vermont is unique in the level of acceptance these renewable energy systems have achieved.

There are now 24 Vermont schools that heat with clean, efficient wood chip systems. Vermont has actually approached “market transformation” with this technology. Biomass Energy Program staff and consultants have worked closely with each of the schools, educating, providing resources, working with wood chip

suppliers and finding expertise to help address issues as they arise. Many schools with wood chip systems once used electric resistance heat. The conversion to wood chip fuels has increased comfort, supported improvements in indoor air quality, dramatically lowered costs, and benefitted the local economy.

- < Savings are dramatic. Leland and Gray Academy was saving more than \$40,000 a year *before* the spike in fossil fuel costs.
- < Almost a MegaWatt of electric capacity has been saved by changing out electric resistance heat in schools. This is a very cost-effective renewable energy application.
- < Public acceptance has grown. U-32 included a \$300,000 wood chip system in its recent renovation project. The wood chip system won greater voter support than the rest of the bond issue.
- < Wood chip systems have been installed in numerous commercial and industrial settings, including the Green Acres low income housing project in Barre, where customer bills were reduced from more than \$220 a month to less than \$50 during the winter heating system.
- < The State of Vermont has eight wood chip heating systems in facilities it owns including the State Capitol complex and the Waterbury office complex.

Tables showing schools with wood chip systems, and commercial and industrial operations with such systems are at <http://www.state.vt.us/psd/ee/ee2.htm#ee2a>.

Biomass Research and Development. The DPS has supported the development of improved biomass combustion technologies and associated fuel management and handling technologies in order to obtain greater efficiency in energy conversion, improved financial performance, lower stack emissions and decreased resource impacts.

In 1999 the DPS began providing active assistance in the development of medium and small-scale modular biomass gasification systems. The DPS supported development of a business plan by a Vermont company that is designing a product of this kind. The DPS has also provided technical assistance in grant writing and through coordination and facilitation with appropriate public, private, and non-profit entities. Technical assistance has also included consultation on fuel characteristics and drying and a northeastern U.S. fuel wood market assessment.

- < The DPS organized and is administering research into “best available emissions control technologies” (BACT) for biomass combustion systems of various sizes. The BACT analysis is a multi-state project (Vermont, Massachusetts, and New Hampshire) designed to inform the region’s air quality regulators in a systematic way about the existing best technologies for controlling stack emissions (particulate and gaseous) to EPA standards.
- < The DPS has participated through FP&R in the development of a forest growth model. This modeling project is a multi-state effort expected to yield information on forest growth and inventory as well as to select a set of ecological indicators. The span of the model is 50 years starting from 2000. Participating states are Vermont, New Hampshire, Maine and New York. This research will provide a great deal of information about present and emerging forest conditions through the next 50 years, information that will be valuable for assessing the sustainably available biomass for energy development.

- < U.S. DOE grants have provided some of the funding for these projects. DOE has a national program for developing and commercializing small, modular biomass energy systems. There are 4 such systems in development at present. One is based on a free-piston Stirling engine. The other three are based on biomass gasification with low or medium BTU gas fed to a gas turbine or reciprocating engine for energy conversion. Vermont R&D efforts share with DOE the goal of developing commercially viable products. These and other national level research and development projects have provided significant assistance and support to Vermont's efforts.
- < The FERCO utility-scale biomass gasifier experiment, located at the McNeil Station in Burlington, continued through the last biennium. In the late summer of 2000, the gasifier achieved a 24 hour run on wood fuel. This event was a major breakthrough, showing that the fuel handling system was capable of supplying fuel for an extended period of time. The exercise also showed that the gasifier could run at a steady state for many hours. The next phase will be parametric testing, during which the gasifier will be run to a variety of limits in order to learn its operating characteristics. The overall goal remains commercialization of the gasification technology with a particular emphasis on distributed generation applications. This project was initially funded through DOE grants secured and managed by the DPS.

Remote Generation. In the previous biennium the DPS was awarded a U.S. DOE grant to develop biomass energy projects at ski resorts. Most ski areas rely on diesel generators to supply peak energy for snow making. Many of these companies are planning or carrying out expansions that could have significant impacts on the electricity distribution system. A remote biomass generation system could fit well with the objectives of distributed generation and distributed utility planning, perhaps especially in this important segment of the Vermont economy.

The prospect of generating a portion of energy demand on site has been explored by a few ski areas. The DPS has supported this exploration and in one instance has supported engineering studies of a biomass energy system or possible multiple systems. An important aspect of these studies has been to find effective uses for using waste heat from the generation process. This research is expected to guide the development of a project suited to resort expansion plans. The outcomes of biomass gasification research and development supported by the DPS may play an important role in remote generation projects.

Combined Heat and Power. In the previous biennium the DPS was awarded a US DOE grant to stimulate biomass-fired combined heat and power projects. The grant was intended to help ensure that such projects are considered in industrial and commercial settings. Lessons learned by the EED implementation of this grant played an important role in leading the EED to propose and support the development of the Biomass Energy Center which is discussed below.

The principal lesson learned is that current accounting and financing practices tend to discourage these installations. While the payback for biomass combined heat and power (CHP) systems is positive, the payback period is often longer than considered acceptable under standard business practices. Funds from this grant are being used to continue offering project screening services to businesses, but are also being applied to the Biomass Center work discussed below. CHP systems offer the opportunity to execute distributed utility planning through distributed generation.

Biomass Energy Center. With DPS support and leadership the biomass energy community in Vermont and the region has chosen to explore the possibility of creating a biomass project development organization. The value of such an organization became evident as a result of experiences in the Remote Generation Project and the Biomass Combined Heat and Power Project.

The movement from the concept of a biomass energy center to its actual creation began with a stakeholder meeting in May, 2000. At that meeting interested stakeholders identified a common set of concerns, agreed that there was a significant opportunity for such an organization, and began to form working groups. These groups developed specific plans for incorporation, budget development and staffing, strategic planning, and financing. By early 2001 the Biomass Energy Center should be incorporated and in the early stages of operation.

The purpose of the Center is to provide direct technical assistance to businesses, institutions and others seeking to install biomass energy systems. Center development work will also provide the capacity to offer financing to these projects. The Center will provide service in Vermont and the northeast region. It is possible that the Center will expand to undertake international activities.

District Energy. Through a grant from the Urban Consortium obtained by the Chittenden County Regional Planning Commission, the DPS and Burlington Electric Department, significant work on District Energy systems has been accomplished in Vermont.

One product of this joint effort was the creation of a publication explaining the concept of biomass district energy. The publication was completed in partnership with the Canadian Ministry of Energy and Transportation (CANMET) and the Chittenden Regional Planning Commission. The publication is aimed at municipal officials, civic leaders and community advocates. CANMET has extensive experience in supporting community energy system development and Vermont has extensive experience with biomass energy. These strengths were combined in this publication.

The DPS has supported and assisted the Montpelier district energy investigation. Funds were obtained from the City-State Commission, the Department of Buildings and General Services, and the DPS. Building on the unique relationship with CANMET which is providing consulting and technical assistance, the district energy concept for Montpelier is being advanced in the context of possible capital campus redevelopment. Anchor tenants could include state buildings, National Life, Montpelier schools and buildings neighboring the state campus.

The Burlington district energy project continued during the last biennium. Further study and negotiation began in the early fall of 2000, led by Burlington Electric Department, with assistance from the Department. The University of Vermont and Burlington Electric Department are the primary parties in this development process. Providing the means for the McNeil plant to sell thermal energy through a district energy system could enhance the plant's economic viability, dramatically reduce greenhouse gas emissions and provide long-term economic benefits to the city and the region.

As with other CHP systems, community energy systems may offer opportunities to support distributed utility planning through distributed generation. These approaches to biomass energy are part of a conscious planning and execution effort to provide a diverse, economically sound, renewable, secure energy mix for Vermont that offers the opportunity for economic growth and environmental improvement.

Biomass Energy Information. In 1999 the DPS conducted another in its series of residential wood fuel use surveys. These surveys have been done every 2 years since 1978 and provide an extended data set for monitoring trends in residential wood heating. These surveys also gain more general energy use information on electric hot water heating, primary space heating, other appliance use, and other items that are of interest at the time of the survey. The survey is supported in part by CONEG/NRBP. The survey report is made available to the public and the series of reports serve as a valuable historical record.

The most recent survey showed that the volume of wood used for home heating stands at about 250,000 cords per season. This volume is the latest low point on a downward trend from a high of 500,000 cords in the early 1980's.

In addition to the biennial wood heating survey, the Biomass Energy Program closely monitors residential firewood stocks and price. This activity proved valuable in the late summer and fall of 2000 as firewood supplies became tight and price increases resulted. The DPS was able to assure consumers that the situation represented a stressed market but not a crisis. The stress was shown to be the result of both wet weather, which constrained the volume of wood available for firewood, and of a sudden increase in the number of people seeking wood fuel.

The DPS also monitors the fuel situation and combustion system performance for public schools heating with wood. This support by the Department helps schools handle disruptions in fuel procurement if a fuel supplier goes out of business, if there is a failure of fuel processing or delivery equipment, or if protracted foul weather prevents the delivery of fuel. DPS and FP&R staff maintain close communication with schools and their wood fuel suppliers as well as back-up suppliers to prevent any dysfunction in the wood fuel market's performance.

In order to further support facilities using wood chips, the DPS holds an annual meeting of schools and their wood fuel suppliers as well as other interested parties. These meetings have proved very valuable in developing consistent fuel specifications, delivery requirements, and combustion system performance expectations. It has also helped solve numerous specific problems related to wood fuel supply.

Another series of meetings conducted by the DPS has been for "biomass partners." These partners include engineers, foresters, wood energy system owners and operators, federal and state government staff, energy consultants, and planners. The purpose of the meetings is the exchange of information and knowledge. The outcome of the meetings is better cooperation among parties active or interested in biomass energy and creative use of limited available personnel.

Finally, the Biomass Energy Program develops information and education products and makes them available to appropriate users. A compendium of wood energy information was developed and made available to foresters and others in a position to assist in wood energy development. In close cooperation with CONEG-NRBP the program has continued to take advantage of information developed by the federal government and other state governments to provide better information to people in Vermont.

Vermont Methane Project. As a result of the efforts of Vermont Senator James Jeffords, the DPS and the Vermont Department of Agriculture received a \$300,000 appropriation from the FY 2000 federal budget to promote the use of methane recovery technology on Vermont dairy farms.

This technology has the potential to help farmers in their nutrient management efforts and at the same time provide additional on-farm income. The goal of this project is to identify and help overcome key strategic hurdles to widespread adoption of methane recovery technologies by Vermont farmers.

The project was designed to consider methane recovery in a broad context, taking into account its potential benefits as a component of a comprehensive nutrient management system, as a renewable energy source and as a strategy for greenhouse gas reduction. One exciting aspect of the Project has been the development of a close working partnership between the Vermont Department of Agriculture and the DPS. Project activities include:

- < experimenting with methods to reduce costs and increase the efficiency of methane recovery technologies and use;
- < developing partnerships with experts in manure management and water quality protection;
- < assessing the potential of dairy manure and other organic wastes in Vermont that could be digested on farms to produce methane and electricity;
- < establishing sites to demonstrate the viability of the technology; and
- < publicizing the progress of the project to stimulate demand for new installations.

Much of the preliminary work on this project was completed in 2000. Below is the current status of project activities:

- < The project has conducted experiments on reducing retention time of manure in an anaerobic digester. Reduction in retention time could mean a smaller digester vessel can be used, and initial capital costs could be lowered.
- < Research has been completed on the available organic resources in Vermont that could be digested to produce methane. This research suggests that dairy manure is by far the largest source of organic material that is available for methane recovery and that trucking other materials to an on-farm digester will only be cost-effective in limited circumstances. It is estimated that there is enough digestible waste produced in Vermont to support up to 30 MW of electric generation.
- < The project has completed preliminary feasibility analyses on fifteen Vermont farms that have expressed interest in this technology. Several of these farms show a potential positive cash flow. The project will proceed with engineering analysis and site design for farmers who think anaerobic digestion may be beneficial to them. For farms that choose to install methane recovery, the project has some cost share monies available.
- < The project has established a research and demonstration facility on a working dairy farm, the Foster Farm in Addison County, that has 15 years of experience with methane recovery and use. Construction on the site is complete and the site is in operation. The project will be performing several experiments at this facility and will use it as a demonstration site to show Vermont farmers and others how this technology works.
- < Vermont's net metering law, described in more detail below, has a unique provision to allow for net metering of farm methane systems of up to 125 kW in capacity.

Phase II Funding Proposal for Vermont Methane Project. In early November, 2000, the Department learned that Senator Jeffords had secured an additional federal appropriation of \$395,000 for further development of the Vermont Methane Project

During 1999 and 2000 the Project gained a great deal of understanding about both the potential for and the barriers to widespread adoption of methane recovery technology on Vermont dairy farms. The project will move forward to incorporate methane recovery and advanced nutrient management practices on a number of farms in the state. The barriers, however, are still significant and will require continued research and development effort.

In order to address these barriers in a sustainable way the project will need to develop a long term institutional capacity for outreach, technical assistance and financial assistance. In Phase II the project may seek to accomplish these goals by:

- < Co-funding one or two staff positions to provide outreach to farmers on nutrient management issues and technical assistance in designing solutions that may include methane digestion and related energy production. This staff could reach out to farmers and help them develop nutrient management plans to improve their productivity and reduce their agricultural runoff. Staff could also provide technical assistance to farmers to help design waste management systems that include methane recovery as a component of their total nutrient management plan.
- < Providing assistance in locating low-interest loans and direct cost-share grants for the installation of methane recovery equipment.
- < Continuing to explore policy approaches and strategic opportunities that support the adoption of methane recovery on Vermont dairy farms.
- < Continuing research and development to find methods of reducing the initial capital cost and the operating and maintenance cost of methane recovery equipment in order to make this technology more cost effective for smaller farms.

One lesson that has become quite clear in the course of this project is that every farm is unique and has its own opportunities and barriers that affect the incorporation of methane recovery systems. In order to successfully overcome these barriers, someone who is knowledgeable about the technology and the multitude of issues that farmers face needs to focus on each project.

Phase II funding will enable the project to set up a program that can sustainably address these barriers and provide direct financial assistance to farmers to help them become more efficient, more profitable and at the same time help address odor and runoff problems. It may be that the Biomass Energy Center may be an ongoing organization in which this function could be institutionalized.

Landfill Methane Potential. EED staff has also promoted recovery of landfill gas as an energy resource. Vermont's landfills are capable of generating several MW of electricity using methane gas – a byproduct of organic decomposition in landfills. By regulation, landfill operators typically install networks of pipes to collect and flare the gas as an odor-management technique. The same collection systems can be used to feed landfill gas into a generating plant. One Burlington company has operated a 500 kW generating unit at one of Burlington's closed landfills, selling the power to Burlington Electric Department. Recent changes in the federal tax code and the initial capital expense of installing generation equipment have tended to discourage investment in landfill-gas-to-energy plants. The Department is continuing to work with the Vermont Congressional delegation on tax issues and is also seeking other ways to support investment in landfill gas plants in the comparatively smaller landfill facilities in this state.

Additional EED Renewable Energy Projects. The Department actively promoted cutting-edge renewable technologies such as solar photovoltaic systems, wind energy, and fuel cell technology in the last biennium.

Net Metering. Net Metering legislation initially drafted and supported by the Department became law during the 1998 legislative session. In the 1999 session modifications endorsed by the EED were made in to the law, allowing additional systems, including certain fuel cells and a limited number of 100 kW renewable energy projects to qualify for net metering.

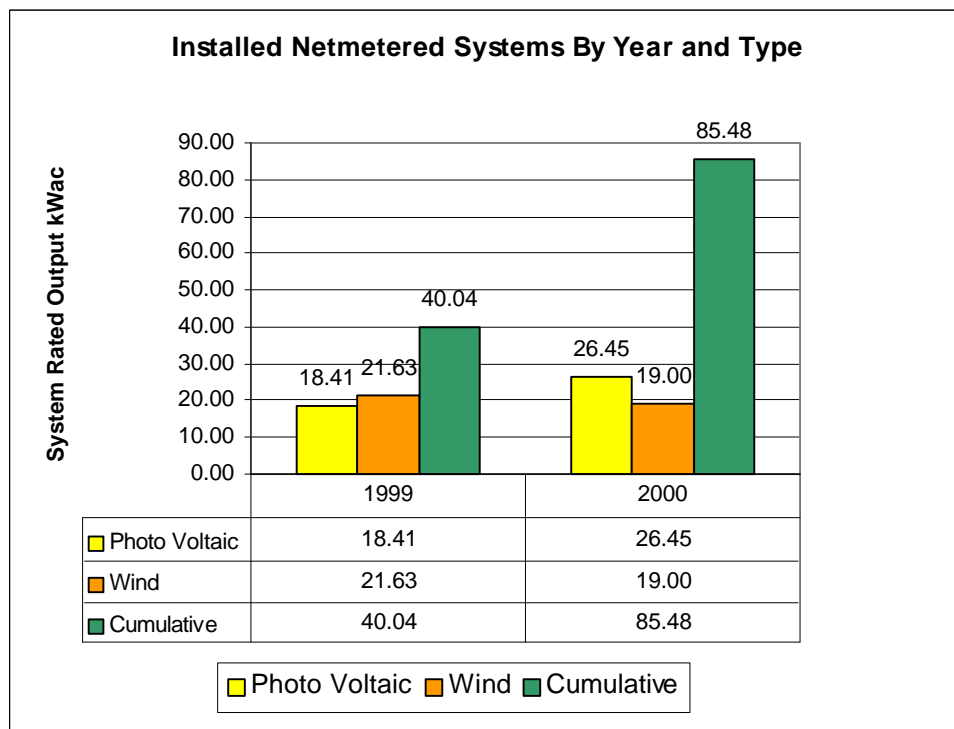
Net metering allows utility customers to connect certain renewable energy systems to the electrical grid through their existing meter. This arrangement makes it possible for customers to run excess energy generated by their system back through the meter and thereby receive credit at the full retail rate for generation they produce beyond their own need.

The net metering legislation is crafted to encourage customers to size their systems to meet primarily their own needs. In the course of a year the consumer can receive credit only for generation delivered back to the system that equals the total amount taken from the system. In effect, the customer uses the utility grid as a low-cost battery or energy storage system. Any net annual excess generation fed back into the grid goes to the benefit of the distribution utility and no payment is made for it.

The Department participated actively in the rule making process that implemented the net metering law and hired a consultant to propose simple, effective, but not burdensome interconnection rules.

The EED assists customers with the net metering application and monitors participation. There are currently 33 permitted net metered systems. The EED has also been actively involved as the consumer advocate in the PSB proceedings establishing rules for net metering. Cumulative installed net metered output grew from 40.04 kWac in 1998 by 113% to 85.48 kWac in 1999. The majority of the growth occurred in residential applications which account for 82% of all installed capacity, with commercial, school and non-profit making up the remaining 18%.

Figure 1.3



The Department supported and the legislature passed a sales tax exemption on equipment used in net metering systems.

Additional initiatives undertaken by the Department include the following:

- < The EED has created and maintains a Renewable Energy Business Directory. The directory includes a list of capabilities and contact information for solar, wind, biomass, micro-hydro and geothermal businesses and is available on the EED Web site at <http://www.state.vt.us/psd/ee/.htm>.

- < The EED was instrumental in facilitating the creation of Renewable Energy Vermont (REV). REV is a renewable energy industry trade organization that advocates for renewable energy.
- < The EED has built and maintains an active web site where citizens can gain access to the many renewable energy projects of the EED.
- < The EED is the lead partner in the State's involvement in the national Million Solar Roofs Initiative. The State's Solar Roof project has obtained , with Department support, a \$40,000 federal grant to further the State's commitment to install 1,000 new solar roofs in Vermont by the year 2010.
- < As part of the Solar Roof Project the EED has established the Solar Roof Partnership Program. To date, nine solar dealers have become official Partners. To become a Partner dealers have to agree to voluntary installation standards and business practice guidelines developed by the EED.
- < EED, Vermont Energy Investment Corporation, and Solar Works Inc. collaborated to secure a \$72,827 grant from the U.S. Department of Energy to develop solar water heating markets in Vermont. The grant monies will be used to develop marketing and educational materials for use in the Energy Rated Homes of Vermont, VT Star Homes, and the Citizens Utility High Use programs.

E. Engineering Division

The Engineering Division is comprised of engineers specializing in the areas of electricity, nuclear power, and natural gas. The Engineering staff performs inspections at facility sites in the state, including Vermont Yankee Nuclear Power Station, liquified petroleum gas (LP gas) sites, and electric and gas transmission and distribution facilities. The Engineering Division is responsible for reviewing facility investment plans by companies in these fields and provides the Public Advocacy Division with technical analysis and expert testimony.

Electricity. The Engineering Division addresses technical issues that affect Vermont's electric utilities and their customers. It seeks to ensure that proposed generation, transmission, and distribution facilities are properly sited and maintained, and that all electric customers are provided with high quality, reliable electric power. The Engineering Division actively promotes and reviews utilities' plans for cost-effective transmission and distribution system energy loss reduction as part of its efforts to ensure that these systems are the least cost alternatives for Vermont's ratepayers. The Engineering Division provides technical assistance to the Consumer Affairs and Public Information Division to ensure that consumer complaints are addressed in an expeditious and technically sound manner. The Engineering Division also provides technical assistance to the Department in matters concerning public safety, utility rate requests, the setting of avoided costs, financing requests, and right-of-way matters. (For more information about electricity, see Section 2 of this report and *Fueling Vermont's Future: Comprehensive Energy Plan and Greenhouse Gas Action Plan*, available on the DPS Web site at <http://www.state.vt.us/psd/indexpsd.htm>, for history, projections, and policy recommendations.)

Transmission and Distribution Facilities. The Engineering Division devotes a significant portion of its resources to ensuring that Vermont's electric transmission and distribution systems are planned, sited, and constructed in a least-cost manner that results in a reliable electric system, consistent with environmental goals. The Engineering Division is charged with analyzing, from a technical and financial perspective, plans for all new and upgraded transmission lines and substations in the state. It then negotiates with the relevant utility to modify, advance, or cancel its proposal. Ultimately, the Engineering Division provides an

independent recommendation to the PSB to approve, disapprove, or modify planned facilities pursuant to 30 V.S.A. ' 248. In conjunction with the Planning Division and the integrated resource planning process, the Engineering Division also ensures that electric distribution systems are planned and constructed in a manner that is consistent with Vermont statutes, Public Service Board Orders, and the *Vermont Electric Plan*. (An executive summary of the *Vermont Electric Plan* is available on the DPS Web site at <http://www.state.vt.us/psd/indexpsd.htm>.)

Distributed Utility Planning. The Engineering Division coordinates with the Energy Efficiency Division to promote the newly emerging concept of Distributed Utility Planning in which utilities plan for and install small, localized generation and demand side management resources in an effort to avoid or defer major investments in transmission and distribution infrastructure, provide customers with premium quality power, and provide enhanced environmental performance. Consistent with this effort, and in response to legislative mandates arising from 30 V.S.A. ' 219(g), the Engineering Division coordinated the removal of technical impediments to the integration of small scale, renewable generation in Vermont. This work is continuing for all types of distributed generation through a collaborative with Vermont's electric utilities. (For more information on Distributed Utility Planning, see *Distributed Utility Planning: Concepts and Issues* on the DPS Web site <http://www.state.vt.us/psd/ee/EEUeval/EvalHome.htm>.)

Energy Loss Savings. The Engineering Division, in conjunction with the Planning Division, continues to promote comprehensive, least-cost transmission and distribution planning studies among Vermont's electric utilities. Successful planning results in the cost-effective reduction of energy losses throughout Vermont's transmission and distribution infrastructure. These studies include significant efforts in system measurement, engineering modeling, and financial analysis that, when completed, provide utilities with a blueprint for upgrading their systems in a reliable, least-cost manner. The Engineering Division provides software, training, and technical advice to the utilities engaged in these studies. It also provides oversight to ensure that completed studies are consistent with Vermont statutes and Board orders. Besides providing cost-effective transmission and distribution system energy loss savings, these studies result in significant gains in reliability, power quality, and safety. Considering only energy loss savings, more than 2 MW of cost effective savings have been identified through these studies resulting in a net savings to Vermont electric utility customers of over \$3 million.

Reliability. The Engineering Division is focusing on the reliability of facilities that deliver electricity to Vermont consumers. A uniform method for measuring reliability among Vermont's electric utilities has been established. Also, an effort to set reliability goals for Vermont's electric utilities has been started. Of special interest are the efforts that VELCO is making to provide reliable transmission service to Vermont. (See Section 2.F. for more on the reliability of the state's electric systems.)

Hydro Relicensing. Review of the state's hydroelectric sites for relicensing purposes is handled by the Agency of Natural Resources and that Agency's Water Quality Division. The Engineering Division monitors issues related to this relicensing process and to the potential effects of this process on system reliability. Instate hydro provides 8% of the state's electric energy supply. The relicensing process has the potential to significantly impact our ability to use this renewable resource.

Transmission Open Access. The DPS and its Engineering and Planning Divisions participate in FERC cases related to transmission in Vermont and the region. The Department continues to be involved in the review and application of FERC Orders that require open access to the transmission system. The Engineering Division provides input and reviews proposals to restructure the electric industry in Vermont. The Division contributes to the New England Conference of Public Utility Commissioner's (NECPUC) efforts to support the continued development of the New England Independent System Operator (ISO). The ISO is responsible for the reliable operation of the high voltage transmission grid in New England and for overseeing the development of a robust, competitive wholesale electric market in New England. The Department, alone and

in conjunction with NECPUC, participates in regional meetings and FERC dockets on issues associated with the development and implementation of the restructured New England Power Pool (NEPOOL) agreement and NEPOOL's ISO-administered open access transmission tariff. The Department is also involved in other open access issues including how new generation in New England will be integrated into the grid, the cost allocation of transmission upgrades necessary to integrate new generation, and information disclosure. (See Section 2.A for more information on ISO New England.)

Nuclear Power. The Engineering Division carries out an on-site inspection program at Vermont Yankee Nuclear Power Station (VY). Activities at Vermont Yankee are monitored, and the administration and the legislature are kept informed of important events at this nuclear facility. The Engineering Division is the primary contact between the U.S. Nuclear Regulatory Commission (NRC) and the state concerning nuclear plant safety issues. During this biennial period, the Engineering Division provided analysis and expert witness responsibilities for evaluating the proposed sale of VY. The Engineering Division is also an active participant in the Nuclear Waste Strategy Coalition, a national consortium working toward a safe and effective national solution for the disposal of spent nuclear fuel. The State Nuclear Engineer, within the Engineering Division, is Vermont's representative on the Texas Low-level Waste Disposal Compact Commission. The Engineering Division provides the state's representative on the Northeast High-Level Radioactive Waste Transportation Task Force, a regional group established by DOE. The Division also provides staff support to the Vermont State Nuclear Advisory Panel (VSNAP). (See Section 2.G. for more information on nuclear power.)

Natural Gas and Propane. The Engineering Division is responsible for managing a certification agreement between the U.S. Department of Transportation and the State of Vermont. Under this agreement, Engineering runs a program that consists of training, inspections, development, and enforcement of regulations associated with the Natural Gas Act of 1968 and subsequent revisions to the act. The program involves natural gas companies and some LP gas companies with certain types of accounts. The Engineering Division also works with other state agencies to provide training, technical advice, inspection and enforcement assistance, incident investigation, and emergency response concerning gas safety related matters. (For more information about natural gas and propane, see Section 4 of this report and *Fueling Vermont's Future: Comprehensive Energy Plan and Greenhouse Gas Action Plan*, available on the DPS Web site.)

Natural gas use in Vermont has been expanding at approximately 5% per year for the period 1987-97 (*State Energy Data Report, DOE/EIA-0214(97)09/99 Table 287*). Vermont Gas has completed the connecting phase of a 10 mile looping project. This phase ties the loop into the Canada/Vermont Border Station. The new loop, an added pipe along part of the existing transmission line which is connected in parallel to it, gives additional capacity to their system, provides another crossing point under the Missisquoi River, and ensures continued supply in the event that one line has to be taken out of service. (See Section 4. for more information on Vermont Natural Gas Systems.)

Propane (liquid petroleum gas or LP gas) usage in Vermont has been growing at approximately 5% per year for the period 1987-97 (*State Energy Data Report, DOE/EIA-0214(97)09/99 Table 287*). Many LP gas storage tanks have been added to new and existing LP gas plants across the state.

F. Economics Division

Tariff Filings. The Economics Division of the Department is responsible for initial review and recommendations regarding tariff filings and the preparation and presentation of financial testimony before the PSB, as well as other jurisdictions. In Fiscal Year 1997, 307 tariff filings were reviewed, and in Fiscal

Year 1998, 487 , tariff filings were reviewed. For FY1999 and 2000, the state's regulated utilities made 482 and 616 tariff filings that the Economics Division reviewed.

The Economics Division also prepares cost reports and other financial reports for internal and external use and handles sales of electricity as authorized under 30 V.S.A. ' ' 211 and 212.

Special Contracts. When an electric, gas, or telecommunications company proposes to offer a customer any product or service not covered in a current, approved rate or tariff, a PSB approved special contract is a prerequisite (30 V.S.A. ' 229). The Economics Division coordinates the Department's review of all special contracts between a utility and a customer. During FY1999, 52 special contracts were reviewed by the Economics Division and approved by the PSB; 27 were electric contracts, 20 were gas contracts, 5 were for telecommunications services. An additional 8 special contracts reviewed by the Economics division received adverse recommendations to the PSB they included 2 electrical contacts and 6 telecommunication contract. During FY2000, 46 special contracts were reviewed by the Economics Division and approved by the PSB; 26 were electric contracts, 11 were gas contracts, 9 were for telecommunications services. An additional 3 special contracts reviewed by the Economics division received adverse recommendations to the PSB, they included 1 electrical contact, 1 gas contract and 2 telecommunication contracts.

Power Sales. In 1985, the Department was authorized by 30 V.S.A. § 212a to add to its long standing wholesaling of electricity to Vermont utilities the retail sale and distribution of electricity to all Vermont residential customers. From 1985 until July 1, 1995, the DPS was involved in the retail sales of St. Lawrence and Ontario Hydro power and energy. On July 1, 1995, due to reduced allocations of St. Lawrence power, unfavorable PSB rulings regarding Ontario Hydro sales, and termination of contracts between the Department and the state's distribution utilities, the DPS ceased retail sales altogether. In September, 1994, the Hydro Quebec contract expired. Since then, the Department has had very little presence (less than 1 MW) in the Hydro Quebec market, using the 1985 interconnection agreement.

The Department purchases power from the St. Lawrence project and resells it to the state's distribution utilities at wholesale on a non-profit basis. DPS serves as a bargaining agent for Vermont's municipal and cooperative utilities in the acquisition of Niagara power and energy from the New York Power Authority (NYPA).

Gross Revenue Tax. By statute, each person, partnership, association, and private or municipal corporation conducting a business subject to the supervision of the Department of Public Service and the Public Service Board must pay an annual tax on its gross revenues to fund the operation of the Department and Board. Tax rates that have been in effect over the two year period for this report and that are currently in effect are shown in the following table.

Table 1.7 Gross Revenue Tax Rates, FY98-FY99

Type of Company	FY98-FY99
Electric	0.0050
Telephone	0.0050 (or \$500 if greater)
Gas	0.0030
Water	0.0010 (or \$5 if greater)
Cable TV	0.0050
Customer Owned, Pay Telephones	
Revenue Greater than \$5,000	0.0050
Revenue Less than \$5,000	0.0050 (or \$20)
Other	0.0010

Source: DPS Economics Division

DPS Financial Summary. Table 1.8 provides an overview of the Department's sources of income and expenditures for fiscal years 1999 and 2000. FY99 closed with an ending balance of \$78,292. FY00 closed with an ending balance of \$81,036.

Table 1.8 Department of Public Service Financial Summary, FY1999 - FY2000

Department of Public Service Financial Summary		
	FY1999	FY2000
INCOME		
Cash Balance Brought Forward	106,905	78,292
Gross Revenue Tax Receipts	2,822,988	3,008,049
Reimbursement by:		
Administration of Power	12,053	21,717
Federal Grants	822,561	624,467
Rate Case Reimbursement	500,103	740,236
Sale of Service	0	0
Miscellaneous Receipts	1,612	0
Interdepartmental Transfer	2,247	76,697
Anticipated Receipts	421,347	598,524
Total Funds Available	4,689,816	5,147,982
Finance Adjustment		
EXPENDITURES		
Personal Services	3,547,027	4,250,792
Operating	573,560	509,698
Grants	457,699	306,456
Other	33,238	0
Total Disbursements	4,611,524	5,066,946
Transfer to General Fund		
Ending Balance	78,292	81,036

Source: DPS Economics Division

G. DPS Communications with the Public

Published Reports and Plans. During this biennium, the Department has issued the following reports in addition to prefiled expert testimony and briefs too numerous to list here.

Planning Documents with Public Input Processes

- 1998 *Fueling Vermont's Future: Comprehensive Energy Plan and Greenhouse Gas Action Plan* Volume 1 - Summary and Recommendations and Volume 2
- 1999 *Vermont Telecommunications Plan: Final Draft*
- 2000 *Vermont Telecommunications Plan: August 2000*

Regularly Published Reports

Annual Reports of the Lifeline Telephone Program: 1994, 1995, 1996, 1997, 1998, 1999
Biennial Reports: July 1, 1992 - June 30, 1994, July 1, 1994 - June 30, 1996, July 1996 - June 20, 1998
The Consumer Matters: 1994, 1995, 1996, 1999
Vermont Department of Public Service: State Agency Plan: Addendum 1995, Revised edition 1997
Vermont State Nuclear Advisory Panel (VSNAP) Annual Reports: June 1995, March 1996, August 1998, June 1999

Technical Reports

- 32. *Vermont Energy Price Forecast:* 1995 (Appendix A Updated June 1996 and August 1997) Updated July 1998; *Outlook for Fossil Fuel Prices* May 1996, Updated September 1997
- 33. *Vermont Residential Fuelwood Assessment 1993-1994:* 1996
- 34. *Docket 5854 Position Paper* (Investigation into Restructuring): March 1996
- 35. *Restructuring the Electric Utility Industry: Competition, the Consumer and the Environment:* May 1996
- 36. *Docket 5854 Supplemental Position Paper:* June 1996
- 37. *Docket 5854 Additional Comments of the Vt. DPS:* August 1996
- 38. *Radiofrequency Radiation: Health Effects and Interference:* December 1996
- 39. *Horizontal Market Power in New England Electricity Markets:* March 1997
- 40. *Vermont Residential Fuelwood Assessment 1995-1996 -* Forthcoming
- 41. *Vermont Electric Utility Demand Side Management*
- 42. *Outlook for Fossil Fuel Prices:* 1998 Update September 1998
- 43. *Vermont Yankee Economic Study -* January 1999
- 44. *New England Market Price Forecast for Electricity* February 1999
- 45. *Long-Term Energy Forecast for New England -* February 1999
- 46. *Overview of Gas-Fired Generation in Northern New England -* February 1999
- 47. *Vermont Updated Energy Forecast -* March 2000
- 48. *Vermont Residential Fuelwood Assessment 1997-1998* forthcoming (December 2000)
- 49. *Broadband Deployment and Taxation Policy in Vermont:* December 2000

Source: DPS Planning Division Librarian

DPS Web Site and Its Use. The DPS Web site has been initiated and has grown into a large and varied source for information about Vermont utilities and current PSB dockets and cases, as well as the Department's reports and plans and links to other government and public utility sites. DPS views its Web Site as an effective channel for communicating with the public and places a high priority on updating material as soon as possible.

Highlights of the DPS Web site include:

- < What's New section, with links to the most current and important issues confronting the DPS.
- < Weekly Public Advocacy Report which contains a schedule of PSB Hearings and lists of PSB Orders issued the prior week, including DPS' filed testimony in important cases.
- < Consumer Information and Alerts regarding winter utility disconnects and key issues related to telephone local measured service and instate toll calling C including a list of companies providing these services.
- < Vermont utility information from the DPS Biennial Report and other sources.
- < Information about electric utility restructuring, including Vermont House and Senate bills, reports and papers by industry experts, remarks by Department staff, and links to other sites with relevant information.
- < Information about the telecommunications industry including an instate telephone company, telecommunication competition, low cost telecommunications services for schools and libraries (Erate), the Vermont Telecommunications Applications Center (VTAC), and Vermont cable TV and communications.
- < Energy efficiency and conservation information including programs for schools, local governments and low income groups, the 1998 Residential Building Energy Standards for energy efficiency in new construction, Vermont retail prices for heating fuels and gasoline, a list of free energy efficiency publications, and downloads of the Building Life Cycle Cost (BLCC) software that helps analyze investments in energy-consuming equipment and building systems.
- < A list of DPS reports, many of which can be downloaded from the Web site.
- < Links to Vermont utility Web sites, other utilities' sites, federal and state sites.

Information on the Web site changes frequently. Those interested in utility matters or wanting to know more about the coming age of competition in the telecommunications and electric industry should visit the DPS Web site at <http://www.state.vt.us/psd> or send an email to vtdps@psd.state.vt.us.

2. ELECTRIC UTILITIES

This chapter briefly addresses some key issues and developments for electric utilities, rate information for residential, commercial, and industrial customer classes, an overview of the state's electric load, a general inventory of the resources that generate the electricity used in Vermont, and a summary of demand side management programs that are targeted to increasing the efficiency of end uses by all customer classes. The final items in this chapter are condensed versions of 1998 and 1999 operating statements (Tables 2.10A and 2.10B) and 1998 and 1999 balance sheets (Tables 2.11A and 2.11B) for the electric utilities serving Vermont customers.

A. New Issues and Developments for Restructuring Vermont's Electric Utilities

Primary activities for the Department during this biennial period have been:

- < Implementation of Energy Efficiency Utility Docket 5980. (See Section 1.D.)
- < Implementation of Net-metering. (See Section 1.D.)
- < Green Mountain Power Corporation (GMP) Rate Case Docket 5983.
- < Docket 6018 - Central Vermont Public Service Corporation (CVPS) rate case.
- < Docket 6107 - GMP 12.9% Rate Increase Request.
- < Docket No. 6120 - Investigation into CVPS's rates effective March 1, 1999.
- < Docket 6270 - Petition regarding modification to Small Power Contracts.
- < Docket 6290 - Distributed Utility Planning.
- < Investigation of sale of Vermont Yankee Docket 6300.
- < Investigation into The Establishment of Retail Access Policies and Procedures Petition of Central Vermont Public Service Corporation and Green Mountain Power Corporation Docket 6330.

Investigation into The Establishment of Retail Access Policies and Procedures. In November, 1999 Central Vermont Public Service Corporation and Green Mountain Power Corporation Petitioned the Public Service Board to conduct an Investigation into The Establishment of Retail Access Policies and Procedures (Docket 6330). GMP and CVPS are requesting that they might voluntarily be permitted opening their respective franchise territories to Retail competition. State agencies, utilities, Vermont business representatives, consumer advocates, and other interested parties have joined the Board and the Department in workshops, negotiations, and educational conferences relating to the investigation. Several states have restructured their electric industry and adjunct to the docket proceedings the PSD is closely monitoring the impacts of retail choice on consumers in other jurisdictions.

History of Retail Choice in Vermont. In September, 1995, DPS requested that the Board open an investigation into how the regulated electric utility industry in Vermont ought to be restructured to best meet the future needs of Vermonters. A working group called the Vermont Round Table on Electric Industry Restructuring, convened by the Department and the Board, had already defined a set of principles to chart the way to a total overhaul of the way Vermonters buy power. DPS proposed making the transition to competitive customer-driven electricity markets as early as 1998 if key conditions were met. These conditions were:

- < sustaining high quality, reliable electric service;
- < assuring public health and safety;
- < safeguards against concentrations of market power;
- < preventing air quality degradation;
- < continued progress on energy efficiency and renewable resource development;
- < improved customer protections;
- < equitable benefits of competition to all utility customers; and
- < safe nuclear power station operation and decommissioning.

The PSB Investigation into the Restructuring of the Electric Utility Industry in Vermont (Docket 5854) was opened in October, 1995. State agencies, utilities, Vermont business representatives, consumer advocates, and other interested parties joined the Board and the Department in workshops, negotiations, and subcommittee efforts that produced reports on strandable costs, energy efficiency, and consumer protection and low income issues in a restructured environment. Following statewide public hearings and numerous

events to inform the public and take comments, the Board is issued its Report and Order on December 30, 1996. Coordinated legislative action was recommended to open Vermont's electricity market to competition.

In preparing the Report and Order in Docket 5854, the PSB found that legislation was required to implement certain aspects of its restructuring proposal and recommended that the General Assembly act in its 1997 session to make necessary statutory changes and modify the state's regulatory structure, based on exclusive franchise territories, thereby allowing for a more open and competitive electric industry. Collaborative negotiations among a broad range of participants were able to establish areas of substantial agreement, but there were major differences to be resolved. In an attempt to resolve some of these critical differences and provide some ground work that the legislature could build on, DPS and the state's two largest utilities, Green Mountain Power and Central Vermont Public Service negotiated a Memorandum of Understanding (MOU) that included proposed resolutions of these differences subject to certain legislative authorizations. In particular, the two utilities agreed to deliver a fixed number of dollars of stranded cost mitigations (\$238,000,000 present value in 1998, estimated to be between one-fifth and one-third of the stranded costs, depending on market price assumptions) in return for assurances regarding recovery of the remainder through a wires charge. The MOU also contained resolutions for a comprehensive set of restructuring issues including fair market rules and public benefits. The MOU was not executed, but was brought to the 1997 legislature to offer a clear path to retail competition, while minimizing litigation. The 1997 legislature, however, did not adopt the proposals in the MOU.

Legislative Action 1997. In early 1997, after unusually extensive hearings by five committees and a lengthy floor debate, the Vermont Senate passed S.62, a comprehensive restructuring bill that laid out a process and plan for introducing competition. Taking the 14 Vermont Principles (established in 1994 by the Vermont Roundtable on Competition and the Electric Industry) as a point of departure, this bill provided for retail competition to begin October 1, 1998, if the PSB determined that a set of strict prerequisites had been met and had made findings on which electric services should be offered in a competitive market and which should not.

Retail market power was addressed by requiring functional separation or divestiture. Strictly limited securitization for stranded costs and a broad array of public benefit programs were authorized. Wires charges for public benefits and for payment of stranded costs were authorized, but stranded cost recovery was limited to costs found by the Board to be prudent and otherwise recoverable. (Municipals were guaranteed recovery of all prudent costs.) Stranded cost reductions (\$238,000,000 present value in 1998) were included in the bill as, essentially, a floor on the amount of mitigation to be expected. Certificate of Public Good standards were set up for discos, transcos, gencos, and retailcos, with alternative regulation available for discos and transcos.

Public benefit provisions in S.62 were broad. An extensive consumer education program by DPS was mandated. A consumer bill of rights was created, and antitrust enforcement was beefed up. A means-tested low income electricity affordability program and protections for displaced utility employees were included. The bill also created a statewide efficiency utility to deliver DSM programs, net metering, and a renewables R&D program, plus a two tiered renewables portfolio requirement and a portfolio emissions cap, both applicable to all retailcos. The Vermont Senate passed S.62 on April 3, 1997, and sent it to the House. Ultimately, no action was taken by the House on S.62. Rather, the House created a special House Electric Regulatory Reform Committee "to examine opportunities for reform in the electric industry." The Committee met 12 times and issued a report on January 9, 1998. It found that the existing regulatory system did "not provide adequate incentive for utilities to provide their customers with the lowest cost power available;" that the existing long term power contracts "pose a problem for utilities and ratepayers;" that customer classes had unequal negotiating power with electricity providers; and that there were "inadequate incentives for investment in energy efficiency."

While recognizing the benefits of competition in wholesale markets, the Committee found "The benefits of retail competition . . . were shown to be speculative . . . since retail competition in the U.S. electric industry has never been done." Instead of retail competition, the Committee recommended a form of performance based regulation (PBR) that would have mandated price and quality standards, with the price standards capped at the regional average "less a Vermont sensitive discount and reasonable adjustments." Failure to perform could result in franchise revocation.

Stranded cost recovery via securitization was authorized, but limited to the "extent that the U.S. and Vermont Constitutions require." Other recommendations included a low income support program, an initial low-priced "life line" block of electricity, special rules for municipal and cooperative utilities, beefed up antitrust enforcement, municipalization by local option with the incumbent utility prohibited from passing on the resulting stranded costs to its other customers, an energy efficiency loan program, net metering, a renewables R&D program, and renewables and emissions portfolio standards similar to S.62's.

Legislative Action 1998. When the 1998 session opened, three House bills were introduced and one more carried over from 1997. The first, H.663, embodied the recommendations of the special House Electric Regulatory Reform Committee as described above. The second, H.675, sponsored by 22 Representatives, adopted the key elements of S.62, but framed most of the provisions as general mandates, rather than detailed program descriptions, and delegated rule making authority to the PSB for implementation. Restructuring plans were to have been filed by utilities no later than September 1, 1998, with retail competition implemented utility by utility, no later than January 1, 1999, unless the Board found various conditions were not met. The third bill, H.701, was favored by a group of large businesses. H.701 proposed a more streamlined system, mandating retail access by 1/1/2000, unbundled rates, and a presumption of 50/50 sharing of above market stranded power costs with mitigation of \$238 million present value (the MOU mitigation amount) as a floor. Public benefit programs were limited to a pair of energy efficiency and renewable generation loan programs. H.485 proposed to authorize the creation of six regional publicly-owned power companies to provide electricity and electric energy services to Vermont residents and businesses, expanding the role of municipal electric utilities and defining standards for the transition from investor-owned electric companies to democratically governed, public power companies.

Although the subject of numerous hearings by several House Committees, none of these bills passed or were voted out by a committee. A specific item that had been part of the restructuring debate, net metering, did pass in a separate bill and has become law.

In an effort to seek further consensus and political support for restructuring, Governor Dean convened a group of stakeholders, including utilities, business, low income and environmental groups, AARP, and the DPS. Working intensively during February and March, 1998, this group made considerable progress on public benefit and general industry structure issues, but was unable to bridge the differences between the parties on stranded cost issues.

Regulatory Events and Docket 6140. An ongoing series of rate cases filed by utilities seeking double digit percentage rate increases to begin recovering increasing stranded above market costs may influence the future of utility restructuring. PSB disallowances of significant amounts of above market costs as imprudent or not use and useful, such as has occurred already in one such case, could force utilities or their creditors and suppliers to take more accommodating stances in restructuring debates. (Major electric utility rate cases are described in 2.B.)

The PSB opened Docket 6140, Investigation into the Reform of Vermont's Electric Power Supply in September, 1998, and held a well attended workshop on Reforming Vermont's Power Supply, inviting participants to file proposals on what action to take. Another well attended workshop in December, 1998, served as a forum for the Governor's Working Group to present its report to the public.

Governor's Working Group. In July, 1998, the Governor appointed a five member Working Group on Vermont's Electricity Future to do an investigation and present recommendations for restructuring Vermont's electric industry and reducing power supply costs. The Working Group heard presentations from many groups. The Working Group's final report outlined a framework that includes comprehensive financial restructuring to bring down the above market power contract costs and consolidation of the state's 22 utilities. (This report is available on the Department's Web site at www.state.vt.us/psd.)

ISO New England Inc. As part of deregulation of the wholesale electric industry, FERC discussed establishment of regional Independent System Operators (ISOs) in its Order 888. ISO New England Inc. was established as a not-for-profit, private corporation on July 1, 1997, following its approval by FERC, to manage the New England region's electric bulk power generation and transmission systems and administer the region's open access transmission tariff. ISO New England Inc. contracts with New England Power Pool (NEPOOL) to operate the bulk power system and to administer the wholesale marketplace. NEPOOL membership has become much more diverse, including brokers, marketers, and new generation owners, as well as distribution companies and, for states like Vermont, traditional electric utilities.

ISO New England operates a "day-ahead - hourly" marketplace. Wholesale electricity suppliers and generators bid their resources into the market the day before and submit separate bids for each resource for each hour of the day. ISO New England tabulates the bids and stacks them in dollar terms from lowest to highest, matching the expected hourly demand forecast for that hour and each hour in the next day. ISO Operation's staff determines the least cost dispatch sequence that reflects actual bids. Generators are dispatched to match the actual load occurring on the system. The highest bid resource that was dispatched to meet actual load sets the Market clearing price for electricity that is paid to all suppliers by buyers who purchase power from the market.

ISO New England, guided by an independent Board of Directors, has two distinct responsibilities: operating the New England bulk power generation and transmission system facilities and maintaining the reliability of that system; and creating and maintaining a competitive marketplace. Functionally, the organization is divided into two major areas. System Operations and Reliability is responsible for the:

- < daily dispatch of electricity resources;
- < assuring reliability of the bulk power system;
- < administration of the open access transmission tariff for New England; and
- < demand forecasting and reliability planning.

The second area, Market Operations, oversees the residual wholesale electricity marketplace to ensure that fully competitive markets are created and maintained that lead to the lowest pricing for bulk electricity. Market Operations also provides customer (participant) services and training support, monitors the marketplace to ensure fairness to all market participants, and updates ISO Rules and Procedures as well as power exchange computer application and support services. (This information comes from the ISO New England Web site www.iso-ne.com/main.html.)

Utility Integrated Resource Plans. In accordance with the Vermont Electric Plan (1988 edition and subsequent revisions) the Board's 1990 Order in Docket 5270 and subsequent rulings, and 30 V.S.A. § 218c., Vermont's electric and gas utilities prepared Integrated Resource Plans (IRPs) and after Department review and Board approval, each utility follows the long term plan laid out in its IRP to provide least cost service,

Table 2.1 Vermont Utility Integrated Resource Plan Status, December, 2000

	First IRP	Second IRP	Third IRP
Private Electric Companies			
CVPS	5/94 not Approved; Revision Ordered	3/97 Revised IRP Approved ¹	10/97 Filed
Citizens Utilities	Withdrawn by Co.	5/14/99 not Approved	7/97 Filed
GMP	5/94 PSB Approved ¹	Withdrawn by Co.	6/96 Filed
Rochester	7/95 Disapproved	8/98 Filed Energy Plan Portion, 8/99 Partial Plan Approved, 12/99 Amend. to Energy Plan	
VMPD/OMYA	12/92 PSB Approved ¹	6/5/00 Board Ruling neither Approved nor Disapproved	
Municipal Electric Companies			
Barton ²	5/96 PSB Approved ¹	Due 5/98	
Burlington Electric	11/92 not Approved; Ordered to File new IRP	6/98 Approved ¹	8/97 Filed
Enosburg Falls ²	1/96 PSB Approved ¹	Due 8/98	
Hardwick ²	12/94 PSB Approved	6/96 - Revisions Filed	
Hyde Park ²	5/95 PSB Approved ¹	1/97 - Revisions Filed	
Jacksonville ²	1/96 PSB Approved ¹	12/97 - Revisions Filed	
Johnson ³	5/96 PSB Approved ¹	Due 3/98	
Ludlow ²	12/92 PSB Approved ¹	5/96 PSB Approved ¹	2/98 - Revisions Filed
Lyndonville ²	11/93 PSB Approved ¹	2/96 Stipulation Filed; Awaiting Board Action	
Morrisville ²	4/97 Approved ¹	Due 4/98	
Northfield	1/93 PSB Approved ¹	5/96 PSB Approved ¹	Due 6/98
Orleans ²	5/96 PSB Approved ¹	4/98 - Revisions Filed	
Readsboro ³	5/96 PSB Approved ¹	Due 4/98	
Stowe ²	1/96 PSB Approved ¹	Due 10/97	
Swanton ²	1/96 PSB Approved ¹	Due 5/98	
Electric Coops			
VEC	1993 IRP Replaced by 1995 IRP (No Approval)	7/96 - (No Approval) Co. intends to File Replacement to 1995 IRP	
WEC	6/93 PSB Approved ¹	Due 11/95	
Gas Companies			
Vt. Gas Systems	Filed 10/93	Due 7/98	

Notes: ¹ Subject to compliance with agreed upon condition.² Vermont Public Power Supply Authority (VPPSA) member systems.³ Metrix member. Source: DPS Planning Division

with life cycle economic and environmental costs taken into account in this planning process.⁹ Prior Board orders require their preparation on a triennial basis.¹⁰ The Board has been reviewing the status of the many IRP dockets and undocketed filings presently before it. A number of electric utilities have asked for guidance from the Board as to how they should proceed, given the resource constraints they face during the discussions now underway regarding power supply reform, the implementation of the efficiency utility, and electric industry restructuring.

In the late spring of 1999 the Board recognized that many Vermont electric utilities needed to devote key resources to power supply reform. In addition, the Board had received a proposed settlement from the parties in Docket No. 5980, Investigation into the Department of Public Service's proposed Energy Efficiency Plan. Under the terms of the settlement, the parties would enter into a formal collaborative process to discuss issues associated with Distributed Utility Planning (DUP) including, among others, procedures for revising IRP filings to reflect DUP principles and to recognize the role of an Energy Efficiency Utility in DSM program implementation. The resultant settlement provided that the filing date for each electric utility's next IRP would be established as part of Docket 6290 "Regarding distributed utility planning." Most pending IRP dockets will remain open but inactive. In the event of any restructuring of the Vermont electric industry, the role of IRP's may need to be reexamined. During this biennium, which has been focused intensively on questions of rate levels and possible restructuring, there has been little activity on the IRP front. Some companies do not have an approved first round IRP while others are operating under their Board approved second round IRP and have a PSB ordered filing date for their third IRP. The current status of utility IRPs is shown in Table 2.1.

B. Major Cases

Following is a summary of the most significant cases litigated by the DPS before the Public Service Board during this biennium.

Docket 5851/5859 - Citizens Utilities Company. As reported in the last Biennial Report, the Public Service Board issued an Order in June 1997 concluding that Citizens Utilities Company's (CUC) operations in Vermont were badly mismanaged and that CUC had committed a number of legal violations. As a result, the PSB placed CUC on probation for a term of at least five years, reduced its rates and allowed return, and required it to pay litigation and probation costs that it will not be able to recover in rates. CUC filed an appeal of the PSB's Order, challenging the Board's legal authority and evidentiary basis to reduce the Company's allowed return from 10.5% to 5.25%. (On December 15, 2000 the Vermont Supreme Court issued a decision affirming the PSB's Order.) A final Order establishing the terms of probation was issued in September 1998, and an Order appointing a Special Master to oversee CUC's compliance with probation was issued in June 1999.

Docket 5980 - Efficiency Utility. In 1997, DPS filed an energy efficiency plan which included a proposal for an energy efficiency utility, independent of the sale of electric power, to deliver unified energy efficiency

⁹30 V.S.A. § 218c states in relevant part, "(b) Each regulated electric or gas company shall prepare and implement a least cost integrated plan for the provision of energy services to its Vermont customers. Proposed plans shall be submitted to the department of public service and the public service board. The board, after notice and hearing, may approve a company's least cost integrated plan if it determines that the company's plan complies with the requirements of subdivision (a)(1) of this section."

¹⁰ Docket 5270, Volume IV at 50-51 states in relevant part, "The following filings shall be made by Central Vermont Public Service, Green Mountain Power, Burlington Electric Department, Vermont Gas Systems, and Citizens Utilities: . . . (c) within 270 days. . . and every three years thereafter." Other Vermont electric utilities are under the same obligation for triennial review of IRP filings.

programs throughout Vermont. Nearly all of the state's 22 electric utilities opposed the Department's plan in some measure and the many interveners included large retail ratepayers and business, consumer, and environmental advocacy groups. After two-and-half years of difficult and complex multi-party litigation and settlement negotiation, as well as legislative advocacy by the DPS, in September 1999 the Board approved a settlement negotiated by DPS with the parties and ordered the creation of the nation's first efficiency utility. In March 2000, after a winning a competitive bid process and executing a contract with the Board, Efficiency Vermont began operations as that utility.

Docket 6018 - CVPS Rate Case. On September 22, 1997, Central Vermont Public Service Corporation (CVPS) filed a request for a 6.6 percent rate increase, for which it stated that the so-called Hydro-Québec contract was primarily responsible. DPS challenged the HQ contract costs, contending that they were imprudently incurred and not used and useful. CVPS argued that the Department's challenge was precluded on grounds of past decisions which CVPS alleged finally decided the matter. The Board ruled against CVPS's preclusion claims and CVPS sought and was granted leave to file an interlocutory appeal with the Vermont Supreme Court. At this writing the parties have briefed and argued the appeal and await the Court's decision. The rate case is on hold pending the outcome of the appeal.

Docket 6107 - GMP 12.9% Rate Increase Request. On May 18, 1998, GMP filed a request for a retail rate increase of 12.9%. The Department and IBM filed testimony opposing the rate increase and hearings, and recommending significant disallowances because of GMP's imprudence in locking into the Hydro-Québec Contract. After hearings on this testimony, the Department, GMP and certain other parties in the docket entered into a series of agreements to stay the proceedings in the docket, provide for temporary rate increases and impose certain other obligations upon the parties. The purpose of the agreements was to give GMP time to mitigate and otherwise find a solution to its high power costs. The Board approved the agreements. Pursuant to the agreements and orders in the proceedings in the docket, the docket was stayed until September 1, 2000. Unfortunately, GMP was unable to achieve significant mitigation of its power costs. Accordingly, on September 1, 2000, GMP filed its rebuttal testimony and exhibits in support of its rate request.

GMP and the DPS then entered into intensive negotiations to try to settle the case on terms that would be beneficial to the state as a whole. The negotiations were productive and resulted in the Third Memorandum of Understanding (MOU) which proposed to settle the case and put the HQ Contract trouble behind GMP. Following is a summary of its key terms:

- < a rate freeze until calendar year 2003 (except under certain limited conditions listed below);
- < a cap on earnings for two years;
- < a write-down of \$3.2 million in 2000 and elimination of returns on certain other assets, including funds spent on the ice storm arbitration and Hydro-Québec contract negotiations;
- < discontinue booking, deferring and recovery of ACE for Energy Utility core program savings after 12/31/01 resulting in an estimated net present value savings to ratepayers of \$6.9 million;
- < freezing of the company's dividend at its current level of \$.55 per share until the company is able to obtain long term financing (likely within three years);
- < protection against unknown risk;
- < any payments made to GMP resulting from the pending ice storm litigation with Hydro-Québec go to reduce ratepayer expense;
- < GMP withdraws its appeal in docket 5983 which is still pending before the Vermont Supreme Court; by this action GMP gives up a potential recovery from ratepayers of an estimated \$16 - \$20 million if it were to prevail on appeal;
- < the introduction of customer service, electric safety and reliability performance standards;
- < enhanced right-of-way maintenance and agreed upon levels of investment in capital spending for reliability;

- < an agreement to end seasonal rates;
- < a rate increase of 3.42% over current temporary levels;
- < an allowed rate of return of 11.25%;
- < agreement that GMP will not be subject to any further penalty or disallowance relating to the prudence of prior actions regarding the HQ contract, plus agreement that GMP's share of the contract is used and useful; and
- < a limited provision allowing GMP to file a rate case in 2001 and/or 2002 if they incur significantly higher power costs than projected, have a significant loss of customer load or retail choice is implemented.

The DPS entered the settlement because it believes the Third MOU provides a fair and final resolution of the pending Hydro-Québec issues from Docket 5983. It provides a level of certainty and resolution that is better for the public interest than more litigation and a very uncertain outcome. It avoids possible, multiple bankruptcies of the state's electric utilities which could be precipitated by a GMP bankruptcy, and it eliminates the financial risk, in particular to the state's municipal utilities, associated with the step-up provisions in the HQ-VJO contract and participation agreement. The settlement includes significant concessions both on the part of the company and on the part of the consumer and provides first for enhanced consumer value and, secondly, for a financially viable company.

On November 13, 2000, the Department filed its surrebuttal testimony and exhibits in support of the Third MOU. On the same day, AARP and IBM filed testimony and exhibits in support of their respective recommendations. GMP also filed testimony in support of the Third MOU. Technical hearings were held from November 20, 2000 through December 1, 2000 by the Public Service Board on the rebuttal/surrebuttal filings of the parties. A final Board decision is scheduled for January 23, 2001.

Docket No. 6120 - Investigation into CVPS's Rates Effective March 1, 1999. On June 12, 1998, Central Vermont Public Service Corp. filed a request to increase its rates by 12.9%. The Board granted the DPS and the company's request to bifurcate the proceeding so that issues related to the prudence and used and usefulness of the Hydro-Québec contract would be decided after the Supreme Court issued its decision on an appeal related to the contract. Subsequently, the company and the DPS agreed that a 4.7% rate increase effective with service rendered January 1, 1999 was just and reasonable, which the Board later approved. The agreement also addressed certain tree trimming, reliability, and customer service issues about which the Department had concerns.

Docket No. 6133 - Catamount/CVPS Petition to Form Holding Company. In July of 1998, Central Vermont Public Service and Catamount Investment Corporation filed a Petition with the Public Service Board to reorganize CVPS as a wholly owned subsidiary of Catamount Investment and included a request for Board approval of the acquisition by Catamount Investment of a controlling interest in CVPS. The Department investigated the ramifications of such a reorganization and negotiated with the companies on proposed Affiliate Transaction Rules and a Code of Conduct to ensure fair and efficient competitive retail electric markets (should such markets be established in Vermont) and a fair allocation of costs between the regulated and unregulated businesses should the acquisition be approved. The case is now on hold while we examine other areas of the utility arena, such as issues surrounding Hydro-Québec contracts and retail choice. Progress, or lack thereof, in other areas may influence the Department's final recommendation to the Board.

Docket 6270 - Petition regarding modification to Small Power Contracts. On August 3, 1999, eighteen of Vermont's retail electric utilities filed a Petition with the Public Service Board seeking relief in the form of modifications to their contracts with a number of Vermont small hydroelectric power producers. As of this writing, the Docket has cleared initial procedural hurdles and is entering the early phases of litigation on the merits.

Docket 6290 - Distributed Utility Planning. The Department's 1997 energy efficiency plan proposed guidelines for distributed utility planning (DUP), under which electric utilities would investigate and implement cost-effective energy efficiency and local generation alternatives to expansion of the transmission and distribution system. As part of the Docket 5980 settlement, the Board opened this investigation into development of DUP guidelines. The DPS and the electric utilities engaged in a collaborative process which was followed by settlement negotiations. To date, the DPS has reached settlements with seven of Vermont's electric utilities, which collectively cover most of the state. These settlements include agreement to an initial set of DUP guidelines, commencement of DUP work by utilities under those guidelines, and a further collaborative on DUP implementation details. At this writing the parties await Board decision on the settlements.

Docket 6300 - Proposed Sale of Vermont Yankee to AmerGen Vermont, LLC. On October 15, 1999, the owners of Vermont Yankee Nuclear Power Station announced an agreement to sell the nuclear plant to AmerGen Vermont, LLC (AmerGen). AmerGen Vermont, LLC, is a wholly-owned subsidiary of AmerGen Energy, LLC, which is in turn a 50/50 partnership between PECO Energy of Philadelphia, and British Energy of Edinburgh, Scotland. This transaction requires a finding by the Public Service Board that the sale promotes the general good of the state of Vermont. In addition, approvals are required from the Federal Energy Regulatory Commission (FERC), the Nuclear Regulatory Commission (NRC), the Securities and Exchange Commission (SEC), and the Internal Revenue Service (IRS), as well as state jurisdictions for owners outside Vermont.

The sales agreement provided that AmerGen would pay a purchase price of \$23.5 million for closing on July 1, 2000, decreasing to \$10 million for closing on December 1, 2000. The Vermont Yankee decommissioning trust fund would be topped off by present owners by an amount of approximately \$34 million, to a value at closing (12/01/00) of \$297 million. While most out of state owners would have the option of paying a premium to opt out of their contractual responsibility to receive power from Vermont Yankee, Vermont owners would choose to continue to receive power for the remaining twelve-year licensed life of the plant at fixed prices ranging from \$39.80/MWh to \$42.80/MWh. The sales agreement also included a requirement that the PSB find the transaction to be prudent and used and useful. AmerGen agreed to keep staffing levels constant and to re-employ substantially all current Vermont Yankee employees. AmerGen also agreed to give the state increased access to plant records and information.

The review of the proposed sale at the Public Service Board occurred in PSB Docket No. 6300, and two rounds of hearings were held in May and June, 2000. Besides the petitioners and the Department, the following were parties in the docket: the Conservation Law Foundation, the Vermont Public Interest Research Group, the Citizens Awareness Network, the New England Coalition on Nuclear Pollution and the International Brotherhood of Electrical Workers.

The Department provided extensive testimony on the economic and safety aspects of the transaction, as well as on prudence and used and useful issues. The Department found a small economic benefit (approximately \$10 million over 12 years) to Vermonters resulting from the sale mainly because the fixed-price power purchase agreement was beneficial to Vermonters after 2001. The Department identified as negative aspects of the sale the emphasis on profitability and possible effect on safety, and the possible insensitivity of out-of-state owners to Vermont concerns. The Department also evaluated the economics of early shutdown, and found that both the sale and continued operation by the present owners were economically preferable to early shutdown.

Overall, however, the Department's analysis found the sale did not promote the general good of the state of Vermont because the purchase price was not high enough. The Department also concluded the prudent and used and useful determination required by the sales agreement could not be granted.

On November 16, 2000, the Vermont Yankee, AmerGen, CVPS, GMP and the Department filed a memorandum of understanding with the Public Service Board in support of a revised financial transaction for the sale of the plant. This revised financial transaction raised the value of the sale to \$93.8 million, including a purchase price of \$40 million, AmerGen payment for new fuel and other costs for the Spring 2001 outage, reduced costs for power under the continuing power purchase agreement, and a \$17.6 million reduction in the decommissioning top-off. The proposal also included a provision to adjust power prices to Vermont owners after 2002 to the lower of either the fixed contract price or the market price with a small premium.

Subsequently, three other nuclear entities, Entergy Nuclear, Dominion Resources, and Constellation Energy, expressed interest to the Public Service Board in purchasing Vermont Yankee. Entergy became admitted as a party to the Docket No. 6300 and committed to provide an alternate bid by January 12, 2001.

C. Year 2000

The year 2000 (Y2K) problem raised very significant concerns because of the extensive use of computers and other microprocessor-based devices in all sectors of society. Its effects on regulated utilities could have been serious. (A paper defining the Y2K problem and other information on how these problems were addressed in Vermont is available on the Department's Web site at <http://www.state.vt.us/psd/y2k.htm>.)

The Y2K problem arises because computers or programs use dating mechanisms that may interpret Saturday, January 1, 2000, as an error and cease functioning or give erroneous results. Some computers may interpret 01/01/00 as 1980 and others as 1900 or some other date. In any event, left uncorrected the computer may mistakenly calculate that the year actually went down (to 1900 or 1980) rather than up.

Vermont's electric utilities had potential significant exposure to the Y2K problem in their financial and billing computer programs, energy management systems, transmission network control systems, communication systems, generator operation and control systems, facility management systems, and many other devices. Telecommunications utilities are equally or more reliant on computer systems and embedded devices for network control, satellite systems, billing systems, and other critical functions. Gas, water, and cable TV utilities had similar potential exposures.

Utilities needed to prepare their operations for the year 2000, including not only the utility's own systems and processes, but also those of its vendors and suppliers. Each utility had to determine which systems and hardware may be affected, evaluate how to rectify any Y2K problems, and allow time for remediation, testing, and verification of affected critical systems and equipment, plus develop contingency plans to deal with the potential failures.

At the Department's request, the Board opened Docket 6108 in June, 1998, to investigate Y2K issues. The Board held a technical workshop for all utilities and issued an interrogatory prepared by the DPS in the form of a Y2K readiness questionnaire to all utilities. In August, 1998, the Department tabulated the utility responses received to date and issued a preliminary report on utility planning for the Y2K problem. By November, 1998, 43% of the state's utilities had responded to the interrogatory. DPS issued a December, 1998, report, displaying all of the utility survey responses. On February 2, 1999, the Department recommended that the Board order that all mission critical systems, including contingency plans, for all utilities be year 2000 ready no later than July 1, 1999, and that companies unable to meet that deadline notify the Board of that fact, in writing, no later than March 1, 1999, and be prepared to present to the Board and the Department a year 2000 readiness plan, including a contingency plan. The DPS also recommended that the Board should require all utilities to complete under oath a fresh Year 2000 Problem Questionnaire with data as of July 1, 1999. On March 22, 2000, the Board so ordered and a third set of readiness questionnaires

was sent out to the utilities. Various additional follow up activities by the DPS and Board took place during the rest of the year.

While some companies addressed Y2K issues promptly, others did not. However, as of October 1, 1999, the DPS reported that the majority of companies, serving the great majority of customers, had filed responses "consistent with basic readiness for the Y2K transition." On December 2, 1999, the DPS filed a final update to its report, stating that, upon an analysis of all information obtained in this process, including direct communications with the companies, the Department does "not have reason to anticipate serious problems about the Y2K readiness of any regulated Vermont utility."

During the problem identification stage of this process, the larger utilities found problems that would have caused serious difficulties with service delivery, financial record keeping or customer service, and some smaller ones did, as well. Significant expenditures were required to remedy these problems, and the larger utilities dedicated personnel full time to these tasks. Due to the attention focused on these issues by utilities and regulators at the state and federal levels, the Year 2000 rollover at Vermont's utilities was uneventful.

D. Rates

New Rates. The biennial period saw 12 requests for rate relief and two filings for major rate cost allocation and design changes. During biennium the two major electric utilities CVPS and GMP, received temporary increases pending resolution of cost recovery issues for the Hydro-Québec/Vermont Joint Owners (HQ/VJO) contract. Central Vermont received a 4.7 % temporary rate increase effective January 1, 1999 and Green Mountain power received a 5.52% temporary rate increase effective January 1, 1999 and an additional 3.0% effective January 1, 2000. It is anticipated that the rate requests associated with these temporary cases will be resolved after the end of the biennium.

The customers of four of Vermont Electric utilities, Washington Electric Coop., Green Mountain Power, The Town of Hardwick, and Northfield Electric Department saw two rate cases each during the biennium period. Four other electric utilities filed for rate change once during the biennium. The following rate increase were filed during the period, Northfield 8.76% and 15.59%, Central Vermont Public Service 10.7%, Enosburg Falls 9.76%, Washington Electric Cooperative 8.1% and 3.8%, Town of Hardwick 3.97% and 5.91%, Vermont Electric Cooperative 12.87%, and Barton Village 15.92%. The primary factor driving utilities' tariff filings for rate increases was purchased power costs, especially scheduled cost increases related to the HQ/VJO contract.

Rate Design. During the biennium significant changes in the New England wholesale power market and increase in summer peak load set the stage for the gradual phasing out of Winter/Summer rates. Seasonal rates have been in effect in Vermont since the early 1970's but the changes in the power market and the capability requirements imposed by ISO-NE for distribution utilities have eliminated most of the economic justification for the rate design. Two utilities filed for the elimination of the seasonal differential Enosburg Falls and Central Vermont Public Corporation, during the biennium. Central Vermont eliminated the differential effective July 1, 2000, and the request by Enosburg Falls is still pending due to the open docket relating to revenue requirement. After the close of the biennial additional utilities filed and received permission to eliminate the differential.

Residential Rates. Tables 2.2A and 2.3 give an overview of a residential rates, and typical bills. For each of Vermont's electric utilities, Table 2.2A shows the average residential customer's use and revenue per kWh for 1998 and 1999. (Revenue per kWh is the amount the utility collected per kWh sold to its customers either overall or for a given customer class. As shown in Table 2.2A, the 1998 average residential rate was

approximately 11.64 cents/kWh. In 1999, it was approximately 12.17 cents/kWh, a 4.5% increase over 1998. This table also provides a ranking of the Vermont utilities, identifying the company whose residential revenue per kWh is the lowest and how the other 21 utilities compare.

According to EEI's Statistical Yearbook of the Electric Utility Industry: 2000 the average Vermont residential rate (using average revenue per kWh sold as the indicator for rates) was 12.1 cents/kWh. Using this methodology to compare residential rates throughout the U.S. The average rate for the New England states is 11.3 cents/kWh. The average residential rate for the total U.S. is 8.24 cents/kWh. The Vermont average is 7% above the New England average residential rate and 46% above the U.S. average.

Looking at the residential customers, based on data from the DOE Energy Information Administration (<http://www.eia.doe.gov/cneaf/electricity/esr/t01.txt>). Vermont's average consumption of 7113 kWh/customer (an increase of 1.4% over the biennium) is 0.6% below the New England average of about 7164 kWh/per customer and 31% below the total U.S. average annual residential use of 10392 kWh/customer. Vermont's average monthly residential bill (\$72.29) is 2.3% higher than the average annual bill for the U.S. (\$70.68).

Table 2.3 shows detailed rate information and typical residential bills as of December, 1999 for each of the Vermont electric utilities. Billing components are shown, including customer charge and rates for peak months and off-peak months. Typical residential bill amounts are shown for a range of usage; from 25 kWh to 3,000 kWh.

Commercial and Industrial Rates. Tables 2.2B and 2.2C give an overview of commercial and industrial customer counts, revenue, and kWh usage for each utility in 1998 and 1999. Revenue per kWh is shown to indicate what the utility collected per kWh sold. As shown in Table 2.2B, for 1998 and 1999, the average revenue/kWh for the commercial class was approximately 10.14 cents/kWh and 10.67 cents/kWh. Table 2.2C shows the same values for industrial rates, which were 7.0 cents/kWh in 1998 and 7.27 cents/kWh in 1999. These tables also show a ranking of each utility's commercial and industrial revenue per kWh.

Aggregate Data. Table 2.2D provides an overview of Vermont's electric utilities' aggregate revenue, kWh sales, customer counts, and revenue per kWh. Using revenue per kWh as an indicator of price, this table also shows each utility's rank among Vermont electric utilities. The Vermont utilities' average revenue/kWh for 1998 was 9.83 cents; in 1999 it was 10.26 cents.

**Table 2.3A Vermont Electric Utilities: Revenue and Usage,
Residential, 1998-1999**

1999						
Company	Residential Rev	kWh	Residential Customers	Avg Res Use (kWh)	Rev/kWh (cents)	Rank by Rev /kWh
Barton	\$1,138,168	10,129,715	1,784	5,678	11.24	15
BED	\$8,443,094	89,437,000	15,801	5,660	9.44	8
Citizens	\$11,346,159	110,083,000	18,025	6,107	10.31	10
CVPS	\$115,495,436	894,874,000	123,048	7,273	12.91	21
Enosburg	\$1,327,337	11,680,100	1,321	8,842	11.36	16
GMP	\$67,060,762	544,447,000	71,476	7,617	12.32	20
Hardwick	\$2,533,558	21,183,575	3,518	6,021	11.96	19
Hyde Park	\$675,466	7,653,753	1,015	7,541	8.83	6
Jacksonville	\$362,504	3,246,679	576	5,637	11.17	14
Johnson	\$414,441	5,376,251	683	7,872	7.71	1
Ludlow	\$1,311,035	15,330,650	2,858	5,364	8.55	4
Lyndonville	\$2,637,090	30,611,000	4,261	7,184	8.61	5
Morrisville	\$2,041,078	18,427,000	2,921	6,308	11.08	13
Northfield	\$1,141,289	10,383,158	1,614	6,433	10.99	12
Orleans	\$369,614	4,011,502	598	6,708	9.21	7
Readsboro	\$142,476	1,672,321	263	6,359	8.52	3
Rochester	\$522,811	4,371,457	681	6,419	11.96	18
Stowe	\$2,021,371	18,912,040	2,705	6,992	10.69	11
Swanton	\$2,304,737	22,964,741	2,821	8,141	10.04	9
VEC	\$12,924,778	110,828,000	14,705	7,537	11.66	17
VMPD OMYA	\$472,635	5,608,674	807	6,950	8.43	2
WEC	\$8,041,328	52,759,000	8,831	5,974	15.24	22
Total	\$242,727,167	1,993,990,616	280,312	7,113	12.17	

1998						
Company	Residential Rev	kWh	Residential Customers	Avg Res Use (kWh)	Rev/kWh (cents)	Rank by Rev /kWh
Barton	\$1,100,772	11,670,388	1,758	6,638	9.43	8
BED	\$8,224,034	86,861,000	15,680	5,540	9.47	9
Citizens	\$10,985,804	108,240,000	17,862	6,060	10.15	11
CVPS	\$108,072,905	878,041,000	122,473	7,169	12.31	21
Enosburg	\$1,204,176	11,202,097	1,307	8,571	10.75	14
GMP	\$61,696,571	533,904,000	71,301	7,488	11.56	18
Hardwick	\$2,424,735	20,643,261	3,517	5,870	11.75	20
Hyde Park	\$644,605	7,299,290	1,002	7,285	8.83	7
Jacksonville	\$357,573	3,173,280	570	5,567	11.27	16
Johnson	\$406,141	5,270,736	677	7,785	7.71	1
Ludlow	\$1,260,505	14,614,468	2,784	5,249	8.63	4
Lyndonville	\$2,423,104	29,634,000	4,204	7,049	8.18	2
Morrisville	\$2,026,807	17,999,000	2,892	6,224	11.26	15
Northfield	\$1,067,512	10,201,954	1,604	6,360	10.46	12
Orleans	\$362,681	4,129,984	569	7,258	8.78	6
Readsboro	\$133,898	1,541,438	258	5,975	8.69	5
Rochester	\$494,212	4,350,702	677	6,426	11.36	17
Stowe	\$1,817,898	17,261,363	2,664	6,479	10.53	13
Swanton	\$2,246,147	22,303,779	2,770	8,052	10.07	10
VEC	\$12,361,934	106,170,000	14,452	7,346	11.64	19
VMPD OMYA	\$448,611	5,395,972	805	6,703	8.31	3
WEC	\$7,339,705	51,396,000	8,685	5,918	14.28	22
Total	\$227,100,330	1,951,303,712	278,511	7,006	11.64	

Source: Annual Reports

**Table 2.2B Vermont Electric Utilities: Revenue and Usage,
Commercial, 1998 - 1999**

1999						
Company	Commercial Revenue	kWh	Commercial Customers	Avg Com Use (kWh)	Com Rev/ kWh (cents)	Rank by Rev /kWh
Johnson	\$113,450	1,435,324	93	15,434	7.90	1
Barton	\$375,131	2,874,022	141	20,383	13.05	21
BED	\$17,332,120	170,703,000	3,550	48,085	10.15	9
Citizens	\$6,053,943	71,029,000	1,937	36,670	8.52	3
CVPS	\$100,038,644	860,614,000	17,851	48,211	11.62	18
Enosburg	\$580,698	5,373,273	116	46,321	10.81	12
GMP	\$68,004,180	688,493,000	12,435	55,367	9.88	8
Hardwick	\$404,855	4,349,261	331	13,140	9.31	4
Hyde Park	\$105,140	1,010,235	80	12,628	10.41	10
Jacksonville	\$64,664	561,768	50	11,235	11.51	16
Ludlow	\$1,065,783	11,316,913	539	20,996	9.42	6
Lyndonville	\$981,596	8,712,000	603	14,448	11.27	14
Morrisville	\$772,792	6,917,000	423	16,352	11.17	13
Northfield	\$305,002	2,906,250	184	15,795	10.49	11
Orleans	\$159,657	1,707,248	65	26,265	9.35	5
Readsboro	\$54,961	474,015	48	9,875	11.59	17
Rochester	\$166,210	1,407,078	109	12,909	11.81	20
Stowe	\$3,597,107	37,434,439	506	73,981	9.61	7
Swanton	\$428,932	3,799,076	275	13,815	11.29	15
VEC	\$1,094,484	9,303,000	547	17,007	11.76	19
VMPD OMYA	\$357,847	4,239,865	63	67,299	8.44	2
WEC	\$435,120	2,750,000	202	13,614	15.82	22
Total	\$202,492,316	1,897,409,767	40,148	47,260	10.67	
1998						
Company	Commercial Revenue	kWh	Commercial Customers	Avg Com Use (kWh)	Com Rev/ kWh (cents)	Rank by Rev /kWh
Barton	\$366,093	2,932,196	139	21,095	12.49	21
BED	\$16,606,440	162,033,000	3,527	45,941	10.25	10
Citizens	\$5,802,979	68,473,000	2,000	34,237	8.47	2
CVPS	\$93,178,070	854,562,000	17,595	48,568	10.90	14
Enosburg	\$526,771	5,159,284	111	46,480	10.21	9
GMP	\$61,815,951	665,707,000	12,170	54,701	9.29	6
Hardwick	\$397,292	4,360,715	328	13,295	9.11	5
Hyde Park	\$95,932	921,551	77	11,968	10.41	11
Jacksonville	\$69,615	608,677	48	12,681	11.44	17
Johnson	\$107,613	1,356,314	91	14,905	7.93	1
Ludlow	\$1,009,915	10,688,530	533	20,054	9.45	8
Lyndonville	\$878,970	8,220,000	584	14,075	10.69	13
Morrisville	\$793,691	6,785,000	421	16,116	11.70	19
Northfield	\$277,045	2,645,383	184	14,377	10.47	12
Orleans	\$161,422	1,772,094	55	32,220	9.11	4
Readsboro	\$56,479	490,896	49	10,018	11.51	18
Rochester	\$156,075	1,399,286	108	12,956	11.15	15
Stowe	\$3,390,863	35,986,368	510	70,562	9.42	7
Swanton	\$413,245	3,664,126	260	14,093	11.28	16
VEC	\$1,028,351	8,718,000	540	16,144	11.80	20
VMPD OMYA	\$359,573	4,120,499	63	65,405	8.73	3
WEC	\$386,851	2,613,000	200	13,065	14.80	22
Total	\$187,879,236	1,853,216,919	39,593	46,807	10.14	

Source: Annual Reports

**Table 2.2C Vermont Electric Utilities: Revenue and Usage,
Industrial, 1998 - 1999**

1999						
Company	Industrial Revenue	kWh	Industrial Customers	Avg Ind Use (kWh)	Ind Rev/ kWh (cents)	Rank by Rev /kWh
Barton	\$0	0	0	0	0.00	0
BED	\$6,263,445	73,973,000	14	5,283,786	8.47	7
Citizens	\$6,162,886	101,902,000	9	11,322,444	6.05	2
CVPS	\$34,397,203	411,865,000	36	11,440,694	8.35	6
Enosburg	\$0	0	0	0	0.00	0
GMP	\$43,518,402	664,111,000	23	28,874,391	6.55	3
Hardwick	\$377,978	4,351,914	23	189,214	8.69	8
Hyde Park	\$90,082	841,360	3	280,453	10.71	16
Jacksonville	\$153,260	1,408,574	4	352,144	10.88	18
Johnson	\$753,861	9,418,236	14	672,731	8.00	5
Ludlow	\$1,572,242	17,552,754	5	3,510,551	8.96	9
Lyndonville	\$2,067,937	19,678,000	38	517,842	10.51	14
Morrisville	\$1,784,609	16,920,000	45	376,000	10.55	15
Northfield	\$941,698	9,703,622	15	646,908	9.70	11
Orleans	\$1,065,952	11,184,000	1	11,184,000	9.53	10
Readsboro	\$6,963	70,575	2	35,288	9.87	12
Rochester	\$0	0	0	0	0.00	0
Stowe	\$64,207	598,997	79	7,582	10.72	17
Swanton	\$3,011,355	30,028,505	68	441,596	10.03	13
VEC	\$1,367,270	17,167,000	50	343,340	7.96	4
VMPD OMYA	\$11,828,602	199,518,513	2	99,759,257	5.93	1
WEC	\$378,145	2,876,000	10	287,600	13.15	19
Total	\$115,806,097	1,593,169,050	441	3,612,628	7.27	

1998						
Company	Industrial Revenue	kWh	Industrial Customers	Avg Ind Use (kWh)	Ind Rev/ kWh (cents)	Rank by Rev /kWh
Barton	\$0	0	0	0	0.00	0
BED	\$6,775,131	75,488,000	14	5,392,000	8.98	8
Citizens	\$5,480,319	92,129,000	9	10,236,556	5.95	2
CVPS	\$30,607,703	386,989,000	35	11,056,829	7.91	4
Enosburg	\$0	0	0	0	0.00	0
GMP	\$40,200,795	636,436,000	23	27,671,130	6.32	3
Hardwick	\$380,285	4,438,982	23	192,999	8.57	7
Hyde Park	\$92,829	835,240	2	417,620	11.11	17
Jacksonville	\$153,331	1,410,966	4	352,742	10.87	16
Johnson	\$747,547	9,221,827	14	658,702	8.11	5
Ludlow	\$1,513,252	16,227,438	5	3,245,488	9.33	9
Lyndonville	\$1,836,193	18,401,000	38	484,237	9.98	12
Morrisville	\$1,659,894	15,992,000	39	410,051	10.38	15
Northfield	\$911,746	9,741,962	17	573,057	9.36	11
Orleans	\$1,018,140	10,905,600	1	10,905,600	9.34	10
Readsboro	\$2,733	22,290	1	22,290	12.26	19
Rochester	\$0	0	0	0	0.00	0
Stowe	\$67,917	664,732	80	8,309	10.22	13
Swanton	\$3,023,040	29,465,678	70	420,938	10.26	14
VEC	\$1,422,775	16,753,000	49	341,898	8.49	6
VMPD OMYA	\$9,670,114	186,157,800	2	93,078,900	5.19	1
WEC	\$375,293	3,075,000	10	307,500	12.20	18
Total	\$105,939,037	1,514,355,515	436	3,473,292	7.00	

Source: Annual Reports

**Table 2.2D Vermont Electric Utilities: Revenue and Usage,
Total, 1998 - 1999**

Company	1999				
	Total Rate Revenue	kWh	Total Customers	Rev/kWh (cents)	Rank by Rev /kWh
VMPD OMYA	\$12,685,823	209,465,452	879	6.06	1
Barton	\$1,638,167	13,833,755	1,957	11.84	20
BED	\$32,320,219	337,009,000	19,366	9.59	9
Citizens	\$24,238,284	291,172,000	20,330	8.32	3
CVPS	\$251,539,894	2,172,798,000	141,103	11.58	19
Enosburg	\$2,080,225	18,507,236	1,479	11.24	18
GMP	\$179,639,714	1,901,783,000	83,989	9.45	8
Hardwick	\$3,347,391	30,078,924	3,880	11.13	16
Hyde Park	\$942,287	10,130,093	1,130	9.30	6
Jacksonville	\$588,268	5,340,021	630	11.02	15
Johnson	\$1,312,719	16,582,114	821	7.92	2
Ludlow	\$3,968,394	44,516,129	3,409	8.91	4
Lyndonville	\$6,357,356	65,741,000	4,902	9.67	10
Morrisville	\$4,618,168	42,389,000	3,390	10.89	14
Northfield	\$2,604,230	24,798,828	2,242	10.50	13
Orleans	\$1,658,885	17,577,534	681	9.44	7
Readsboro	\$209,428	2,298,391	411	9.11	5
Rochester	\$737,961	6,110,344	801	12.08	21
Stowe	\$5,912,572	59,535,372	3,328	9.93	11
Swanton	\$5,818,482	57,270,533	3,167	10.16	12
VEC	\$15,477,307	137,890,000	15,351	11.22	17
WEC	\$8,856,274	58,393,000	9,045	15.17	22
Total	\$566,552,048	5,523,219,726	322,291	10.26	

Company	1998				
	Total Rate Revenue	kWh	Total Customers	Rev/kWh (cents)	Rank by Rev /kWh
VMPD OMYA	\$10,505,037	195,772,671	877	5.37	1
Barton	\$1,589,818	15,583,755	1,924	10.20	13
BED	\$31,876,459	327,166,000	19,222	9.74	11
Citizens	\$233,615,025	2,125,930,000	140,275	10.99	17
CVPS	\$22,927,751	276,416,000	20,263	8.29	3
Enosburg	\$1,883,342	17,812,933	1,457	10.57	15
GMP	\$164,749,898	1,840,948,000	83,549	8.95	4
Hardwick	\$3,232,457	29,685,104	3,876	10.89	16
Hyde Park	\$894,802	9,670,104	1,161	9.25	8
Jacksonville	\$588,359	5,315,923	622	11.07	19
Johnson	\$1,293,293	16,212,676	815	7.98	2
Ludlow	\$3,803,189	41,843,728	3,329	9.09	5
Lyndonville	\$5,761,552	62,916,000	4,826	9.16	7
Morrisville	\$4,502,901	40,937,000	3,353	11.00	18
Northfield	\$2,459,708	24,340,622	2,231	10.11	12
Orleans	\$1,598,477	17,490,821	642	9.14	6
Readsboro	\$198,138	2,136,104	406	9.28	9
Rochester	\$696,666	6,075,345	796	11.47	21
Stowe	\$5,481,012	56,365,769	3,292	9.72	10
Swanton	\$5,755,932	55,885,512	3,103	10.30	14
VEC	\$14,900,959	132,210,000	15,089	11.27	20
WEC	\$8,103,410	57,092,000	8,897	14.19	22
Total	\$526,418,185	5,357,806,067	320,005	9.83	

Source: Company Annual Reports

Note: Total revenues and sales include additional revenue and sales not included in the 3 major classes.

TABLE 2.3 TYPICAL RESIDENTIAL BILLS AS OF NOVEMBER 2000

UTILITY:			kWh 200	kWh 400	kWh 600	kWh 800	kWh 1000	kWh 1500	kWh 2000	kWh 3000
BARTON										
Customer Charge		\$6.02	\$72.24	\$72.24	\$72.24	\$72.24	\$72.24	\$72.24	\$72.24	\$72.24
NYPA Block	100	\$0.06250	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00
Peak Months	4	\$0.10700	\$42.80	\$128.40	\$214.00	\$299.60	\$385.20	\$599.20	\$813.20	\$1,241.20
Off-Peak Months	8	\$0.07380	\$59.04	\$177.12	\$295.20	\$413.28	\$531.36	\$826.56	\$1,121.76	\$1,712.16
Surcharge		32.11%	\$79.98	\$145.38	\$210.78	\$276.18	\$341.59	\$505.09	\$668.59	\$995.60
EEU Charge		1.78%	\$5.86	\$10.65	\$15.43	\$20.22	\$25.01	\$36.98	\$48.96	\$72.90
Average Monthly Bill			\$27.91	\$50.73	\$73.55	\$96.38	\$119.20	\$176.26	\$233.31	\$347.43
BURLINGTON										
Customer Charge		\$7.33	\$87.96	\$87.96	\$87.96	\$87.96	\$87.96	\$87.96	\$87.96	\$87.96
NYPA Block	200	0.055462	\$133.11	\$133.11	\$133.11	\$133.11	\$133.11	\$133.11	\$133.11	\$133.11
Peak Months	4	0.098245	\$0.00	\$0.00	\$157.19	\$235.79	\$314.38	\$510.87	\$707.36	\$1,100.34
Off-Peak Months	8	0.094624	\$0.00	\$0.00	\$302.80	\$454.20	\$605.59	\$984.09	\$1,362.59	\$2,119.58
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Average Monthly Bill			\$18.42	\$18.42	\$56.75	\$75.92	\$95.09	\$143.00	\$190.92	\$286.75
CITIZENS										
Customer Charge		\$6.52	\$78.24	\$78.24	\$78.24	\$78.24	\$78.24	\$78.24	\$78.24	\$78.24
First Block(off-Peak)	250	\$0.09429	\$113.15	\$141.44	\$141.44	\$141.44	\$141.44	\$141.44	\$141.44	\$141.44
First Block (peak)	250	0.09439	\$113.27	\$141.59	\$141.59	\$141.59	\$141.59	\$141.59	\$141.59	\$141.59
Peak Months	6	\$0.10891	\$98.02	\$228.71	\$359.40	\$490.10	\$816.83	\$1,143.56	\$1,797.02	\$1,797.02
Off-Peak Months	6	\$0.09448	\$85.03	\$198.41	\$311.78	\$425.16	\$708.60	\$992.04	\$1,558.92	\$1,558.92
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		2.46%	\$7.49	\$13.37	\$19.37	\$25.37	\$31.37	\$46.36	\$61.35	\$91.34
Average Monthly Bill			\$26.01	\$46.47	\$67.31	\$88.15	\$108.99	\$161.09	\$213.18	\$317.38
CVPS										
Customer Charge		\$11.01	\$132.12	\$132.12	\$132.12	\$132.12	\$132.12	\$132.12	\$132.12	\$132.12
Levelized rate	0	\$0.11348	\$272.35	\$544.70	\$817.06	\$1,089.41	\$1,361.76	\$2,042.64	\$2,723.52	\$4,085.28
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		1.50%	\$6.06	\$10.13	\$14.21	\$18.29	\$22.37	\$32.56	\$42.76	\$63.15
Average Monthly Bill			\$34.21	\$57.25	\$80.28	\$103.32	\$126.35	\$183.94	\$241.53	\$356.71
ENOSBURG										
Customer Charge		\$5.91	\$70.92	\$70.92	\$70.92	\$70.92	\$70.92	\$70.92	\$70.92	\$70.92
NYPA Block	175	\$0.03930	\$82.53	\$82.53	\$82.53	\$82.53	\$82.53	\$82.53	\$82.53	\$82.53
Peak Months	5	\$0.14700	\$18.38	\$165.38	\$312.38	\$459.38	\$606.38	\$973.88	\$1,341.38	\$2,076.38
Off-Peak Months	7	\$0.08520	\$14.91	\$134.19	\$253.47	\$372.75	\$492.03	\$790.23	\$1,088.43	\$1,684.83
Surcharge		7.54%	\$14.08	\$34.16	\$54.23	\$74.31	\$94.39	\$144.58	\$194.78	\$295.16
EEU Charge		1.87%	\$3.76	\$9.12	\$14.48	\$19.84	\$25.20	\$38.60	\$52.00	\$78.80
Average Monthly Bill			\$17.05	\$41.36	\$65.67	\$89.98	\$114.29	\$175.06	\$235.84	\$357.38
GMP										
Customer Charge		\$10.90	\$130.80	\$130.80	\$130.80	\$130.80	\$130.80	\$130.80	\$130.80	\$130.80
First Block	200	\$0.10628	\$255.07	\$255.07	\$255.07	\$255.07	\$255.07	\$255.07	\$255.07	\$255.07
Peak Months	4	\$0.12558	\$100.46	\$200.93	\$301.39	\$401.86	\$653.02	\$904.18	\$1,406.50	\$1,406.50
Off-Peak Months	8	\$0.09660	\$154.56	\$309.12	\$463.68	\$618.24	\$1,004.64	\$1,391.04	\$2,163.84	\$2,163.84
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		1.48%	\$5.71	\$9.49	\$13.27	\$17.04	\$20.82	\$30.26	\$39.70	\$58.58
Average Monthly Bill			\$32.63	\$54.20	\$75.77	\$97.33	\$118.90	\$172.82	\$226.73	\$334.57
HARDWICK										
Customer Charge		\$4.29	\$51.48	\$51.48	\$51.48	\$51.48	\$51.48	\$51.48	\$51.48	\$51.48
NYPA Block	25	\$0.06108	\$18.32	\$18.32	\$18.32	\$18.32	\$18.32	\$18.32	\$18.32	\$18.32
Peak Months	5	\$0.14721	\$128.81	\$276.02	\$423.23	\$570.44	\$717.65	\$1,085.67	\$1,453.70	\$2,189.75
Off-Peak Months	7	\$0.10020	\$122.75	\$263.03	\$403.31	\$543.59	\$683.87	\$1,034.57	\$1,385.27	\$2,086.67
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		1.84%	\$5.91	\$11.20	\$16.49	\$21.78	\$27.07	\$40.30	\$53.53	\$79.98
Average Monthly Bill			\$27.27	\$51.67	\$76.07	\$100.47	\$124.87	\$185.86	\$246.86	\$368.85
HYDE PARK										
Customer Charge		\$7.68	\$92.16	\$92.16	\$92.16	\$92.16	\$92.16	\$92.16	\$92.16	\$92.16
NYPA Block	175	\$0.04296	\$90.22	\$90.22	\$90.22	\$90.22	\$90.22	\$90.22	\$90.22	\$90.22
Peak Months	6	\$0.10392	\$15.59	\$140.29	\$265.00	\$389.70	\$514.40	\$826.16	\$1,137.92	\$1,761.44
Off-Peak Months	6	\$0.06494	\$9.74	\$87.67	\$165.60	\$243.53	\$321.45	\$516.27	\$711.09	\$1,100.73
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		2.32%	\$4.82	\$9.53	\$14.24	\$18.94	\$23.65	\$35.42	\$47.18	\$70.71
Average Monthly Bill			\$17.71	\$34.99	\$52.27	\$69.55	\$86.82	\$130.02	\$173.21	\$259.61
JACKSONVILLE										
Customer Charge		\$5.15	\$61.80	\$61.80	\$61.80	\$61.80	\$61.80	\$61.80	\$61.80	\$61.80
NYPA Block	175	\$0.04990	\$104.79	\$104.79	\$104.79	\$104.79	\$104.79	\$104.79	\$104.79	\$104.79
Peak Months	5	\$0.13470	\$16.84	\$151.54	\$286.24	\$420.94	\$555.64	\$892.39	\$1,229.14	\$1,902.64
Off-Peak Months	7	\$0.10640	\$18.62	\$167.58	\$316.54	\$465.50	\$614.46	\$986.86	\$1,359.26	\$2,104.06
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		1.99%	\$4.02	\$9.66	\$15.30	\$20.94	\$26.59	\$40.69	\$54.80	\$83.00
Average Monthly Bill			\$17.17	\$41.28	\$65.39	\$89.50	\$113.61	\$173.88	\$234.15	\$354.69

TABLE 2.3 TYPICAL RESIDENTIAL BILLS AS OF NOVEMBER 2000 (continued)

			kWh 200	kWh 400	kWh 600	kWh 800	kWh 1000	kWh 1500	kWh 2000	kWh 3000
JOHNSON										
Customer Charge		\$5.29	\$63.48	\$63.48	\$63.48	\$63.48	\$63.48	\$63.48	\$63.48	\$63.48
NYPA Block	100	\$0.04580	\$54.96	\$54.96	\$54.96	\$54.96	\$54.96	\$54.96	\$54.96	\$54.96
Peak Months	4	\$0.08810	\$35.24	\$105.72	\$176.20	\$246.68	\$317.16	\$493.36	\$669.56	\$1,021.96
Off-Peak Months	8	\$0.05870	\$46.96	\$140.88	\$234.80	\$328.72	\$422.64	\$657.44	\$892.24	\$1,361.84
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		2.75%	\$5.51	\$10.03	\$14.54	\$19.06	\$23.58	\$34.87	\$46.16	\$68.74
Average Monthly Bill			\$17.18	\$31.26	\$45.33	\$59.41	\$73.48	\$108.68	\$143.87	\$214.25
LUDLOW										
Customer Charge		\$5.02	\$60.24	\$60.24	\$60.24	\$60.24	\$60.24	\$60.24	\$60.24	\$60.24
NYPA Block	150	\$0.02710	\$48.78	\$48.78	\$48.78	\$48.78	\$48.78	\$48.78	\$48.78	\$48.78
Peak Months	6	\$0.09250	\$27.75	\$138.75	\$249.75	\$360.75	\$471.75	\$749.25	\$1,026.75	\$1,581.75
Off-Peak Months	6	\$0.04900	\$14.70	\$73.50	\$132.30	\$191.10	\$249.90	\$396.90	\$543.90	\$837.90
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		2.40%	\$3.64	\$7.72	\$11.81	\$15.89	\$19.97	\$30.18	\$40.38	\$60.79
Average Monthly Bill			\$12.93	\$27.42	\$41.91	\$56.40	\$70.89	\$107.11	\$143.34	\$215.79
LYNDONVILLE										
Customer Charge		\$5.42	\$65.04	\$65.04	\$65.04	\$65.04	\$65.04	\$65.04	\$65.04	\$65.04
NYPA Block	100	\$0.04330	\$51.96	\$51.96	\$51.96	\$51.96	\$51.96	\$51.96	\$51.96	\$51.96
Peak Months	6	\$0.09020	\$54.12	\$162.36	\$270.60	\$378.84	\$487.08	\$757.68	\$1,028.28	\$1,569.48
Off-Peak Months	6	\$0.06170	\$37.02	\$111.06	\$185.10	\$259.14	\$333.18	\$518.28	\$703.38	\$1,073.58
Surcharge		12.58%	\$26.18	\$49.11	\$72.05	\$94.98	\$117.91	\$175.23	\$232.56	\$347.22
EEU Charge		2.16%	\$5.06	\$9.50	\$13.93	\$18.37	\$22.80	\$33.89	\$44.98	\$67.15
Average Monthly Bill			\$19.95	\$37.42	\$54.89	\$72.36	\$89.83	\$133.51	\$177.18	\$264.54
MORRISVILLE										
Customer Charge		\$5.04	\$60.48	\$60.48	\$60.48	\$60.48	\$60.48	\$60.48	\$60.48	\$60.48
NYPA Block	150	\$0.04513	\$81.23	\$81.23	\$81.23	\$81.23	\$81.23	\$81.23	\$81.23	\$81.23
Peak Months	5	\$0.13473	\$33.68	\$168.41	\$303.14	\$437.87	\$572.60	\$909.43	\$1,246.25	\$1,919.90
Off-Peak Months	7	\$0.10641	\$37.24	\$186.22	\$335.19	\$484.17	\$633.14	\$1,005.57	\$1,378.01	\$2,122.88
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		1.89%	\$4.02	\$9.39	\$14.76	\$20.13	\$25.50	\$38.92	\$52.34	\$79.18
Average Monthly Bill			\$18.06	\$42.14	\$66.23	\$90.32	\$114.41	\$174.64	\$234.86	\$355.31
NORTHFIELD										
Customer Charge		\$8.30	\$99.60	\$99.60	\$99.60	\$99.60	\$99.60	\$99.60	\$99.60	\$99.60
NYPA Block	120	\$0.03780	\$54.43	\$54.43	\$54.43	\$54.43	\$54.43	\$54.43	\$54.43	\$54.43
Peak Months	5	\$0.11240	\$44.96	\$157.36	\$269.76	\$382.16	\$494.56	\$775.56	\$1,056.56	\$1,618.56
Off-Peak Months	7	\$0.08650	\$48.44	\$169.54	\$290.64	\$411.74	\$532.84	\$835.59	\$1,138.34	\$1,743.84
Surcharge		23.27%	\$57.58	\$111.91	\$166.25	\$220.58	\$274.92	\$410.76	\$546.60	\$818.27
EEU Charge		1.98%	\$6.05	\$11.76	\$17.48	\$23.19	\$28.90	\$43.18	\$57.46	\$86.02
Average Monthly Bill			\$25.92	\$50.38	\$74.85	\$99.31	\$123.77	\$184.93	\$246.08	\$368.39
ORLEANS										
Customer Charge		\$5.61	\$67.32	\$67.32	\$67.32	\$67.32	\$67.32	\$67.32	\$67.32	\$67.32
NYPA Block	170	\$0.05630	\$114.85	\$114.85	\$114.85	\$114.85	\$114.85	\$114.85	\$114.85	\$114.85
Peak Months	4	\$0.09660	\$11.59	\$88.87	\$166.15	\$243.43	\$320.71	\$513.91	\$707.11	\$1,093.51
Off-Peak Months	8	\$0.06660	\$15.98	\$122.54	\$229.10	\$335.66	\$442.22	\$708.62	\$975.02	\$1,507.82
Surcharge		8.33%	\$17.47	\$32.79	\$48.10	\$63.41	\$78.73	\$117.01	\$155.30	\$231.87
EEU Charge		2.28%	\$5.17	\$9.70	\$14.23	\$18.77	\$23.30	\$34.63	\$45.96	\$68.61
Average Monthly Bill			\$19.37	\$36.34	\$53.31	\$70.29	\$87.26	\$129.70	\$172.13	\$257.00
READSBORO										
Customer Charge		\$4.50	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00
NYPA Block	100	\$0.03370	\$40.44	\$40.44	\$40.44	\$40.44	\$40.44	\$40.44	\$40.44	\$40.44
Peak Months	6	\$0.10510	\$63.06	\$189.18	\$315.30	\$441.42	\$567.54	\$882.84	\$1,198.14	\$1,828.74
Off-Peak Months	6	\$0.05840	\$35.04	\$105.12	\$175.20	\$245.28	\$315.36	\$490.56	\$665.76	\$1,016.16
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		2.41%	\$4.65	\$9.38	\$14.11	\$18.85	\$23.58	\$35.42	\$47.26	\$70.93
Average Monthly Bill			\$16.43	\$33.18	\$49.92	\$66.67	\$83.41	\$125.27	\$167.13	\$250.86
ROCHESTER										
Customer Charge		\$8.67	\$104.04	\$104.04	\$104.04	\$104.04	\$104.04	\$104.04	\$104.04	\$104.04
First Block	0	\$0.00000	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Peak Months	6	\$0.12930	\$155.16	\$310.32	\$465.48	\$620.64	\$775.80	\$1,163.70	\$1,551.60	\$2,327.40
Off-Peak Months	6	\$0.07120	\$85.44	\$170.88	\$256.32	\$341.76	\$427.20	\$640.80	\$854.40	\$1,281.60
Surcharge		0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge		1.76%	\$6.05	\$10.28	\$14.50	\$18.73	\$22.95	\$33.51	\$44.08	\$65.20
Average Monthly Bill			\$29.22	\$49.63	\$70.03	\$90.43	\$110.83	\$161.84	\$212.84	\$314.85
STOWE										
Customer Charge		\$6.51	\$78.12	\$78.12	\$78.12	\$78.12	\$78.12	\$78.12	\$78.12	\$78.12
NYPA Block	150	\$0.04353	\$78.35	\$78.35	\$78.35	\$78.35	\$78.35	\$78.35	\$78.35	\$78.35
Peak Months	5	\$0.13027	\$32.57	\$162.84	\$293.11	\$423.38	\$553.65	\$879.32	\$1,205.00	\$1,856.35
Off-Peak Months	7	\$0.07384	\$25.84	\$129.22	\$232.60	\$335.97	\$439.35	\$697.79	\$956.23	\$1,473.11
Surcharge		4.07%	\$8.75	\$18.26	\$27.76	\$37.27	\$46.78	\$70.56	\$94.33	\$141.88
EEU Charge		2.07%	\$4.63	\$9.66	\$14.69	\$19.72	\$24.75	\$37.32	\$49.90	\$75.05
Average Monthly Bill			\$19.02	\$39.70	\$60.39	\$81.07	\$101.75	\$153.46	\$205.16	\$308.57

Table 2.3 Typical Residential Bills as of November 2000 (continued)

			kWh 200	kWh 400	kWh 600	kWh 800	kWh 1000	kWh 1500	kWh 2000	kWh 3000
SWANTON										
Customer Charge			\$5.77	\$69.24	\$69.24	\$69.24	\$69.24	\$69.24	\$69.24	\$69.24
NYP&A Block	150		\$0.03210	\$57.78	\$57.78	\$57.78	\$57.78	\$57.78	\$57.78	\$57.78
Peak Months	6		\$0.13020	\$39.06	\$195.30	\$351.54	\$507.78	\$664.02	\$1,054.62	\$1,445.22
Off-Peak Months	6		\$0.07620	\$22.86	\$114.30	\$205.74	\$297.18	\$388.62	\$617.22	\$845.82
Surcharge			0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge			1.93%	\$3.64	\$8.42	\$13.19	\$17.96	\$22.74	\$34.67	\$46.61
Average Monthly Bill				\$16.05	\$37.09	\$58.12	\$79.16	\$100.20	\$152.79	\$205.39
VEC										
Customer Charge			\$9.12	\$109.44	\$109.44	\$109.44	\$109.44	\$109.44	\$109.44	\$109.44
NYP&A Block	100		\$0.06582	\$78.98	\$78.98	\$78.98	\$78.98	\$78.98	\$78.98	\$78.98
Peak Months	12		\$0.12581	\$150.97	\$452.92	\$754.86	\$1,056.80	\$1,358.75	\$2,113.61	\$2,868.47
Surcharge			0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge			1.89%	\$6.40	\$12.10	\$17.80	\$23.50	\$29.20	\$43.44	\$57.69
Average Monthly Bill				\$28.82	\$54.45	\$80.09	\$105.73	\$131.36	\$195.46	\$259.55
VT. MARBLE										
Customer Charge			\$3.66	\$43.92	\$43.92	\$43.92	\$43.92	\$43.92	\$43.92	\$43.92
First Block	100		\$0.07650	\$91.80	\$91.80	\$91.80	\$91.80	\$91.80	\$91.80	\$91.80
Peak Months	4		\$0.08990	\$35.96	\$107.88	\$179.80	\$251.72	\$323.64	\$503.44	\$683.24
Off-Peak Months	8		\$0.06980	\$55.84	\$167.52	\$279.20	\$390.88	\$502.56	\$781.76	\$1,060.96
Surcharge			0.00%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EEU Charge			2.34%	\$5.33	\$9.63	\$13.94	\$18.24	\$22.54	\$33.29	\$44.05
Average Monthly Bill				\$19.40	\$35.06	\$50.72	\$66.38	\$82.04	\$121.18	\$160.33
WEC										
Customer Charge			\$9.24	\$110.88	\$110.88	\$110.88	\$110.88	\$110.88	\$110.88	\$110.88
NYP&A Block	150		\$0.07387	\$132.97	\$132.97	\$132.97	\$132.97	\$132.97	\$132.97	\$132.97
Peak Months	6		\$0.19983	\$59.95	\$299.75	\$539.54	\$779.34	\$1,019.13	\$1,618.62	\$2,218.11
Off-Peak Months	6		\$0.11857	\$35.57	\$177.85	\$320.13	\$462.40	\$604.68	\$960.38	\$1,316.07
Surcharge			10.61%	\$36.01	\$76.54	\$117.08	\$157.62	\$198.16	\$299.50	\$400.85
EEU Charge			0.18%	\$0.66	\$1.40	\$2.14	\$2.89	\$3.63	\$5.49	\$7.34
Average Monthly Bill				\$31.34	\$66.62	\$101.90	\$137.17	\$172.45	\$260.65	\$348.85

NOTE: These companies have temporary rates in effect

Central Vermont Public Service
Citizens Utilities
Green Mountain Power Corp.

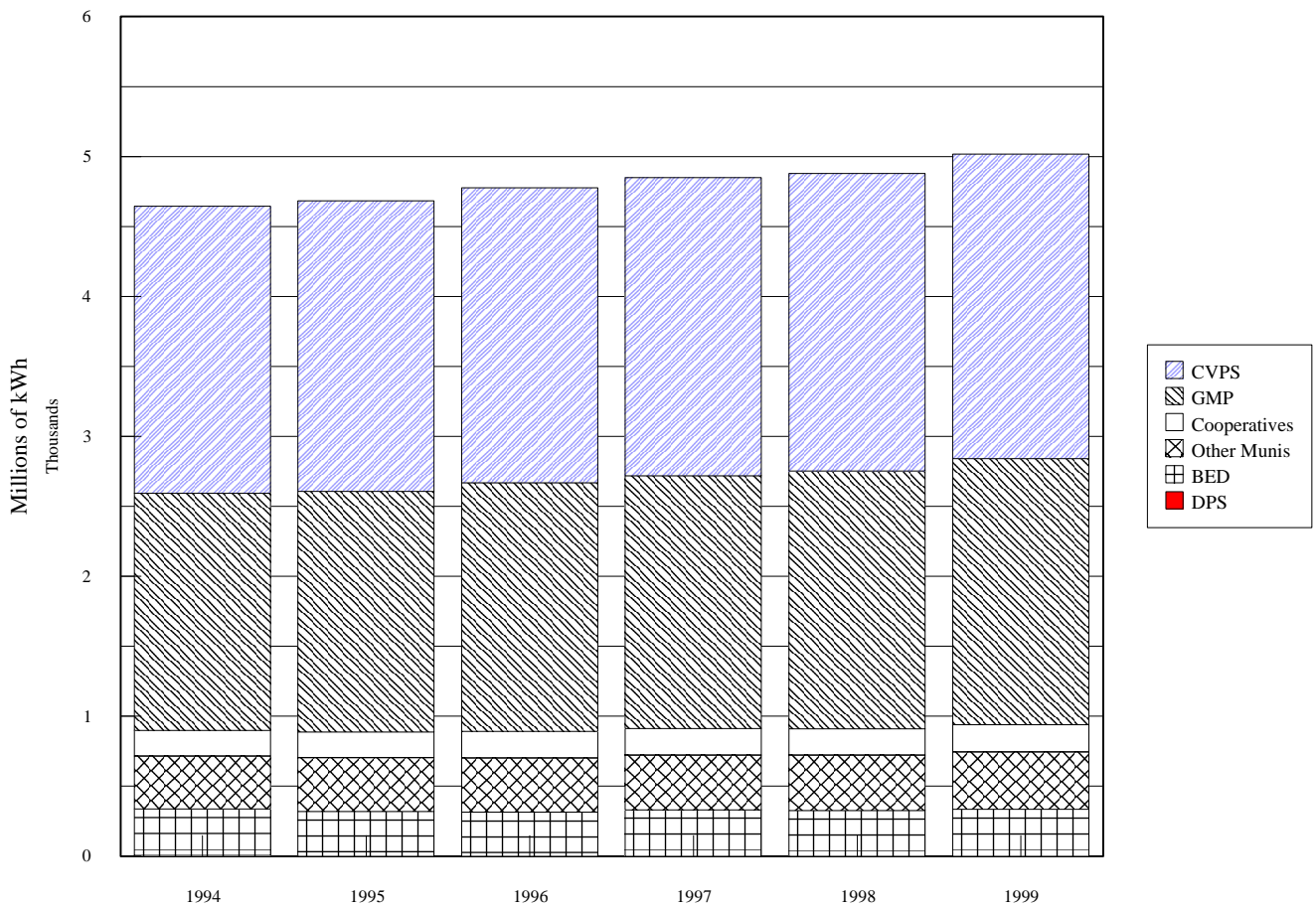
E. Electric Loads

For Vermont, 1998 and 1999 brought load growth of 0.96% in 1998 and 2.99% in 1999 in electricity sales to ultimate customers. Table 2.4 and accompanying graph shows sales to ultimate customers by Vermont's utilities. Total sales to all customer classes in 1998 and 1999 were 5,357,806,067 kWh and 5,523,219,726 kWh respectively. (See Table 2.6.)

The number of residential customers increased by 3865 (1.4%) while average residential usage actually declined 2.54% during the biennium. Total residential sales during the biennium period showed a slight increase, about 7,526,918 kWh (0.38%), but still remained below 1990 sales. The industrial sales declined 5.88% in 1998 and grew 5.20% in 1999. Commercial sales increased 10.77% in 1998 and 2.38% in 1999.

Vermont's system peak loads are strongly weather dependent. In 1998 and 1999, the system peak reached 997 MW surpassing the previous winter peak of 968 MW set in December, 1989. (See Figure 2.3.) Summer peak loads continue to increase annually and are now rivaling winter peaks. In 1999 the summer peak was 906 MW.

If this trend of increased summer use continues, Vermont could be a summer peaking state in the near future. This has significant implications for Vermont. For system operators, it means increasing difficulty in scheduling maintenance, plus the impacts on both seasons must weigh into any supply or transmission planning efforts. For Vermont energy users, it may mean that power cost savings we experienced because our peak demands were at a time (winter) when other areas had surplus power may be coming to an end.

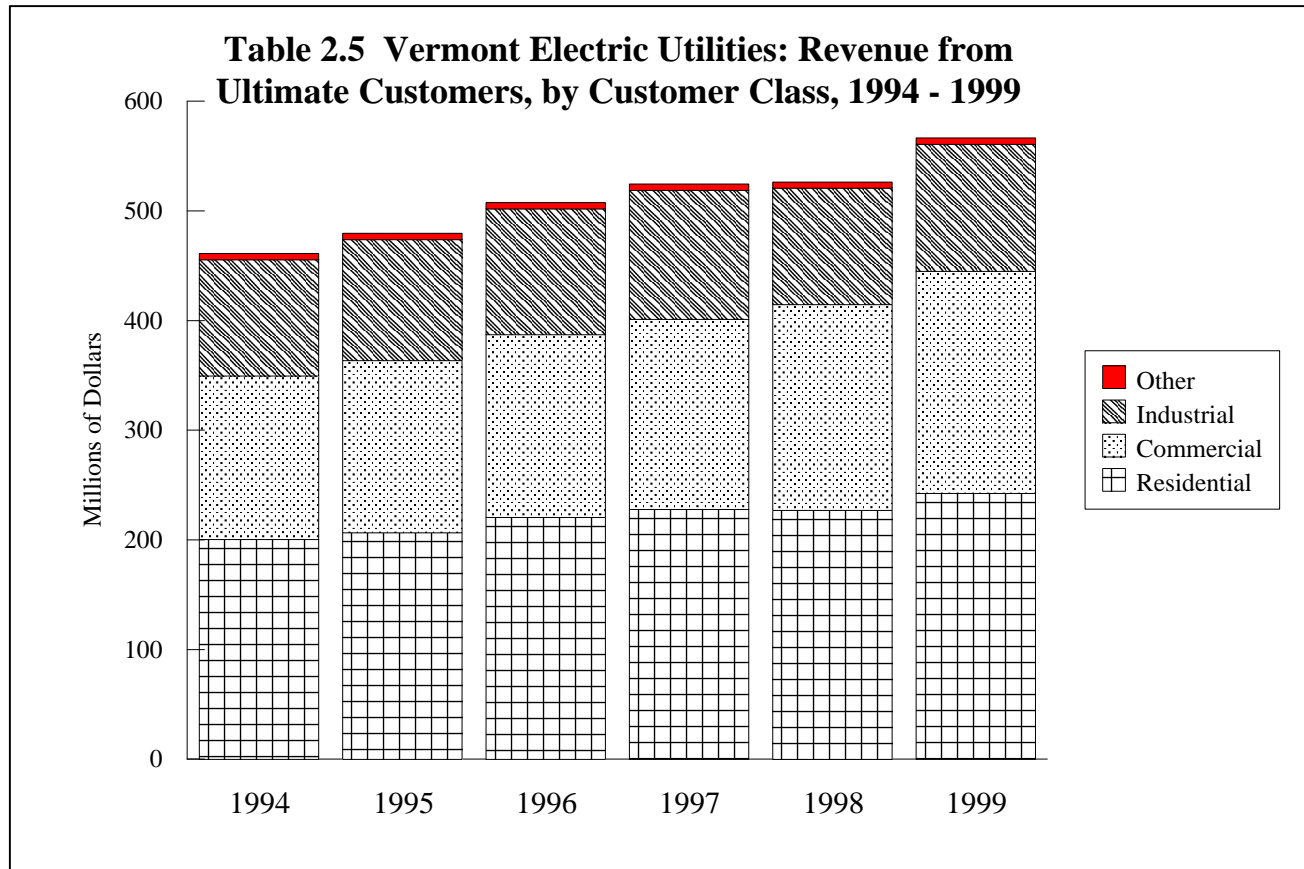
Table 2.4 Vermont Electric Utilities: Sales to Ultimate Customers by Utility, 1994 - 1999**Sales to Ultimate Customers by Utility (kWh)**

Utility	1994	1995	1996	1997	1998	1999
Small Privates	140,752,933	143,679,402	170,820,298	187,769,940	201,848,016	215,575,796
Citizens	282,740,000	267,351,000	271,832,000	270,693,000	276,416,000	291,172,000
CVPS	2,048,409,000	2,075,297,000	2,104,561,000	2,126,714,000	2,125,930,000	2,172,798,000
GMP	1,695,597,000	1,719,014,000	1,777,589,000	1,807,537,000	1,840,948,000	1,901,783,000
Cooperatives	183,940,458	185,071,643	189,986,000	190,029,000	189,302,000	196,273,000
Other Munis	377,264,672	382,642,112	386,479,616	391,047,698	396,196,051	408,608,930
BED	331,734,000	321,607,000	317,302,000	332,840,000	327,166,000	337,009,000
DPS	7,275,260	664,046	0	0	0	0
Total	5,067,713,323	5,095,326,203	5,218,569,914	5,306,630,638	5,357,806,067	5,523,219,726

Percentage of Sales to Ultimate Customers by Utility

Utility	1994	1995	1996	1997	1998	1999
Small Privates	2.78	2.82	3.27	3.54	3.77	3.90
Citizens	5.58	5.25	5.21	5.10	5.16	5.27
CVPS	40.42	40.73	40.33	40.08	39.68	39.34
GMP	33.46	33.74	34.06	34.06	34.36	34.43
Cooperatives	3.63	3.63	3.64	3.58	3.53	3.55
Other Munis	7.44	7.51	7.41	7.37	7.39	7.40
BED	6.55	6.31	6.08	6.27	6.11	6.10
DPS	0.14	0.01	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Annual Reports



Revenue from Ultimate Customers by Customer Class

	1994	1995	1996	1997	1998	1999
Residential	\$200,632,570	\$206,722,585	\$220,628,034	\$228,184,332	\$227,100,330	\$242,727,167
Commercial	\$149,237,862	\$156,988,272	\$166,711,852	\$173,284,806	\$187,879,236	\$202,492,316
Industrial	\$105,845,386	\$110,439,276	\$114,700,691	\$117,463,607	\$105,939,037	\$115,806,097
Other	\$5,596,001	\$5,582,287	\$5,652,640	\$5,620,624	\$5,499,582	\$5,526,468
Total	\$461,311,819	\$479,732,420	\$507,693,218	\$524,553,369	\$526,418,185	\$566,552,048

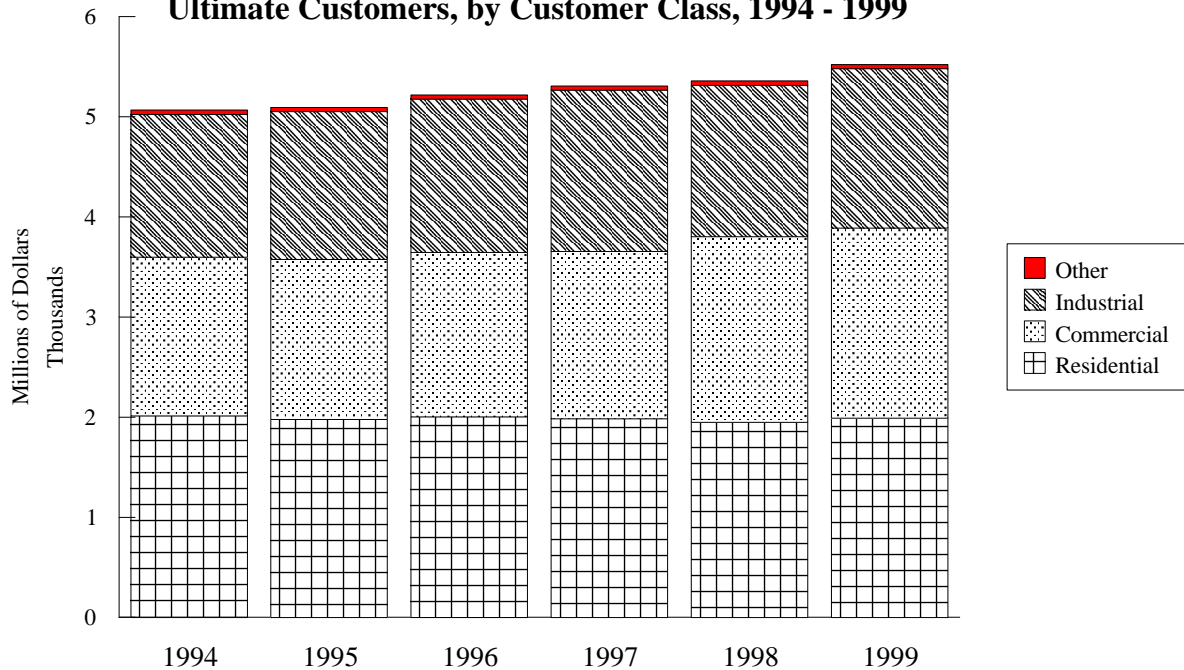
Percentage of Revenue From Ultimate Customers

	1994	1995	1996	1997	1998	1999
Residential	43.49	43.09	43.46	43.50	43.14	42.84
Commercial	32.35	32.72	32.84	33.03	35.69	35.74
Industrial	22.94	23.02	22.59	22.39	20.12	20.44
Other	1.21	1.16	1.11	1.07	1.04	0.98
Total	100.00	100.00	100.00	100.00	100.00	100.00

Note: Residential data include New York Power Authority (NYPA) power sold by DPS.

Source: Annual Reports

Table 2.6 Vermont Electric Utilities: Sales to Ultimate Customers, by Customer Class, 1994 - 1999



Sales to Ultimate Customers by Customer Class (kWh)

	1994	1995	1996	1997	1998	1999
Residential	2,016,298,354	1,978,870,333	2,005,686,276	1,986,463,698	1,951,303,712	1,993,990,616
Commercial	1,585,438,898	1,600,952,885	1,643,056,833	1,672,972,257	1,853,216,919	1,897,409,767
Industrial	1,425,881,728	1,476,087,147	1,531,469,272	1,608,999,823	1,514,355,515	1,593,169,050
Other	40,094,343	39,415,838	38,357,533	38,194,860	38,929,921	38,650,293
Total	5,067,713,323	5,095,326,203	5,218,569,914	5,306,630,638	5,357,806,067	5,523,219,726

Percentage of Sales to Ultimate Customers

	1994	1995	1996	1997	1998	1999
Residential	39.79	38.84	38.43	37.43	36.42	36.10
Commercial	31.29	31.42	31.48	31.53	34.59	34.35
Industrial	28.14	28.97	29.35	30.32	28.26	28.84
Other	0.79	0.77	0.74	0.72	0.73	0.70
Total	100.00	100.00	100.00	100.00	100.00	100.00

Note: Residential data include New York Power Authority (NYPA) power sold by DPS.

Source: Annual Reports

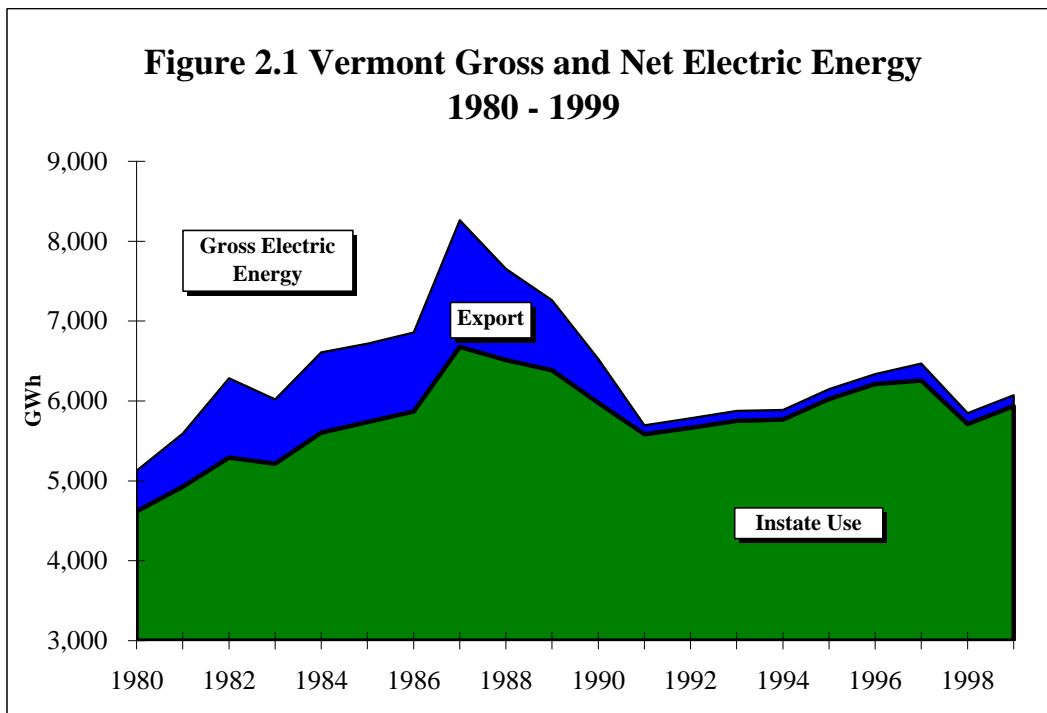
Table 2.7 Vermont's Electrical Energy by Source (GWh) 1972-1997
(including Energy for Export)

	NYPA	Instate Hydro	Vermont Yankee	Hydro Quebec	Other Purchases	Other Wood	Instate Thermal	Exports	Total	Own Usage
1980	883	349	1,354	287	1,637		109	510	4,619	4,109
1981	885	443	1,689	527	1,308		76	666	4,928	4,262
1982	894	364	2,248	194	1,485		108	991	5,292	4,301
1983	896	436	1,555	191	2,035		102	804	5,215	4,411
1984	898	418	1,805	227	1,966	195	96	1,002	5,605	4,603
1985	925	393	1,621	595	1,874	280	47	982	5,735	4,753
1986	943	464	1,128	1,425	1,809	85	16	989	5,869	4,881
1987	761	454	1,928	1,840	1,515	156	23	1,585	6,677	5,092
1988	613	429	1,892	1,685	1,737	91	65	1,143	6,511	5,368
1989	625	547	1,384	1,634	1,962	189	42	877	6,383	5,506
1990	366	749	1,470	1,527	1,676	160	27	549	5,976	5,426
1991	348	590	1,448	1,090	1,866	205	35	114	5,582	5,469
1992	208	519	1,448	1,371	1,979	125	13	123	5,662	5,539
1993	132	594	1,462	1,588	1,717	247	10	126	5,750	5,624
1994	107	607	1,863	1,624	1,338	216	11	122	5,766	5,644
1995	95	573	1,700	2,287	1,112	244	12	124	6,023	5,899
1996	75	741	1,800	2,254	1,091	215	37	123	6,213	6,090
1997	82	666	2,108	2,184	961	243	13	212	6,257	6,045
1998	93	644	1,560	1,432	1,608	313	63	133	5,713	5,580
1999	82	554	1,985	2,261	691	322	42	136	5,937	5,801

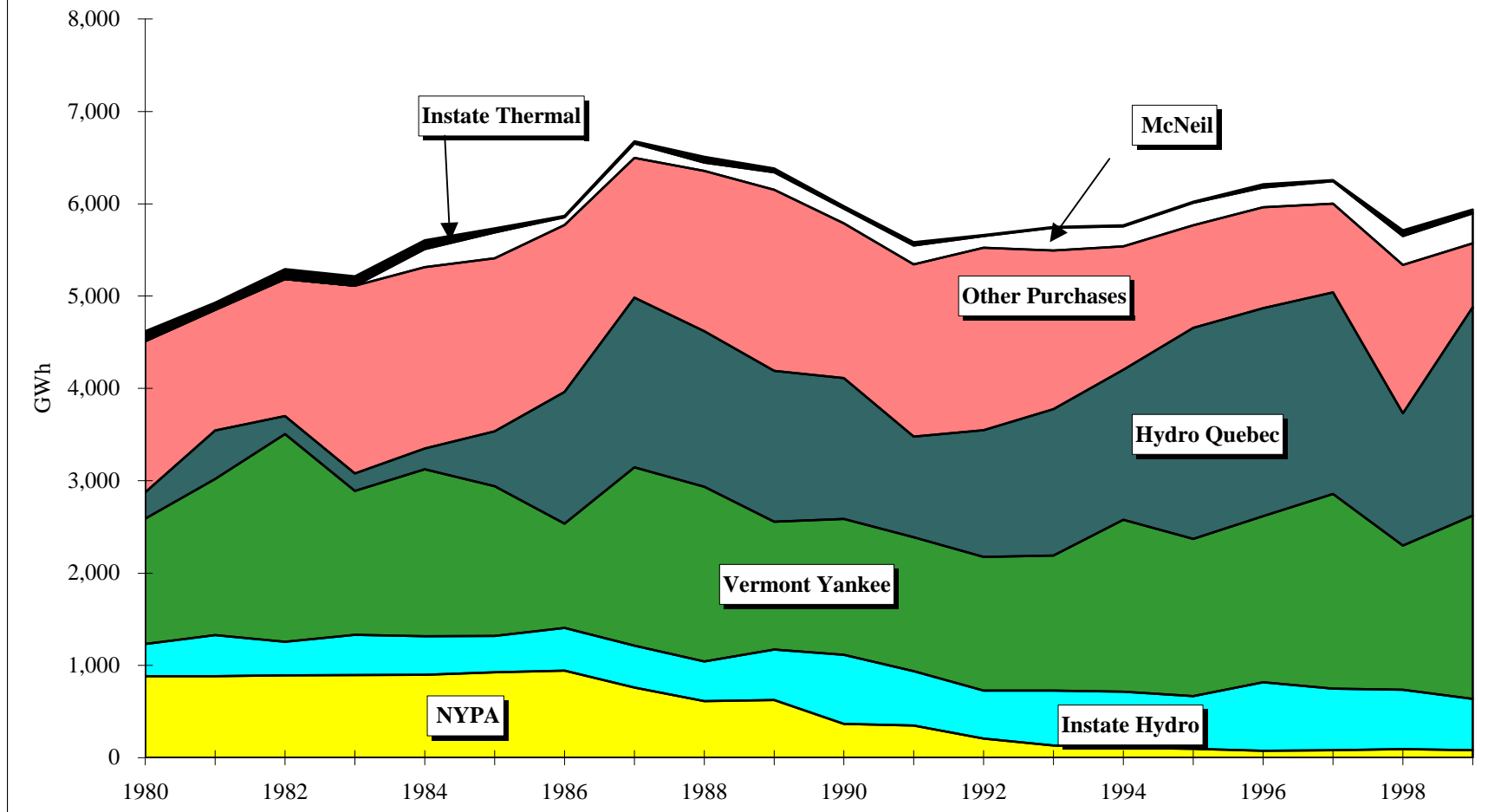
Notes

1. "Instate Hydro" includes both utility owned and independent producers.
2. "Other Wood" is McNeil generation (both wood and gas) prior to 1991. After 1991, independent wood producers included.
3. After 1991, and after 1997, data sources changed. Data may not be directly comparable.
4. Through 1991, "Exports" represent wholesale transactions between Vermont and NEPOOL. Beginning in 1992, "Exports" are only the wholesale sales to CVPS' New Hampshire subsidiary.

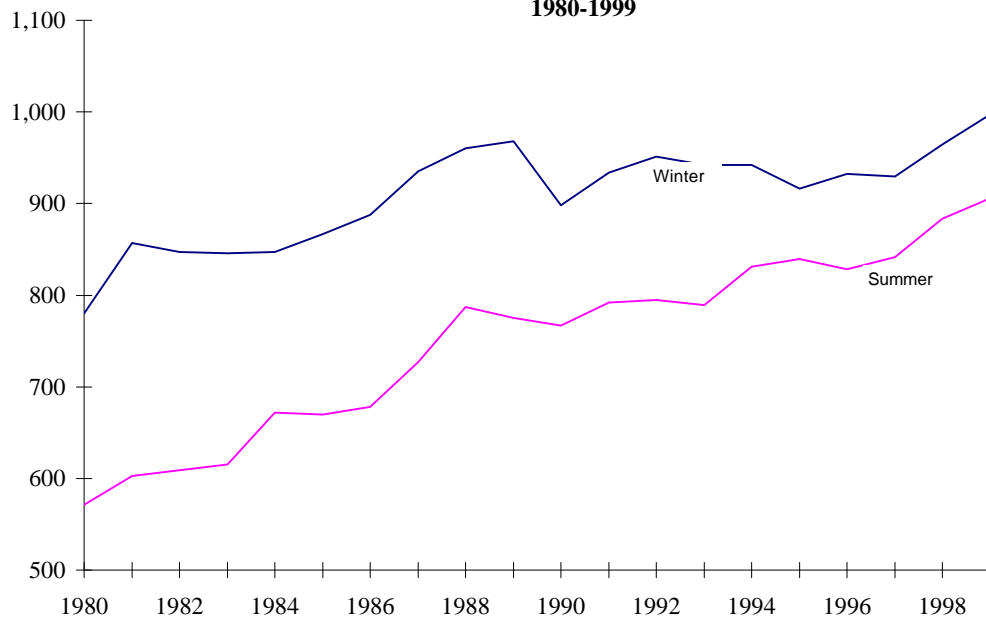
Source: VELCO and DPS Economics Division



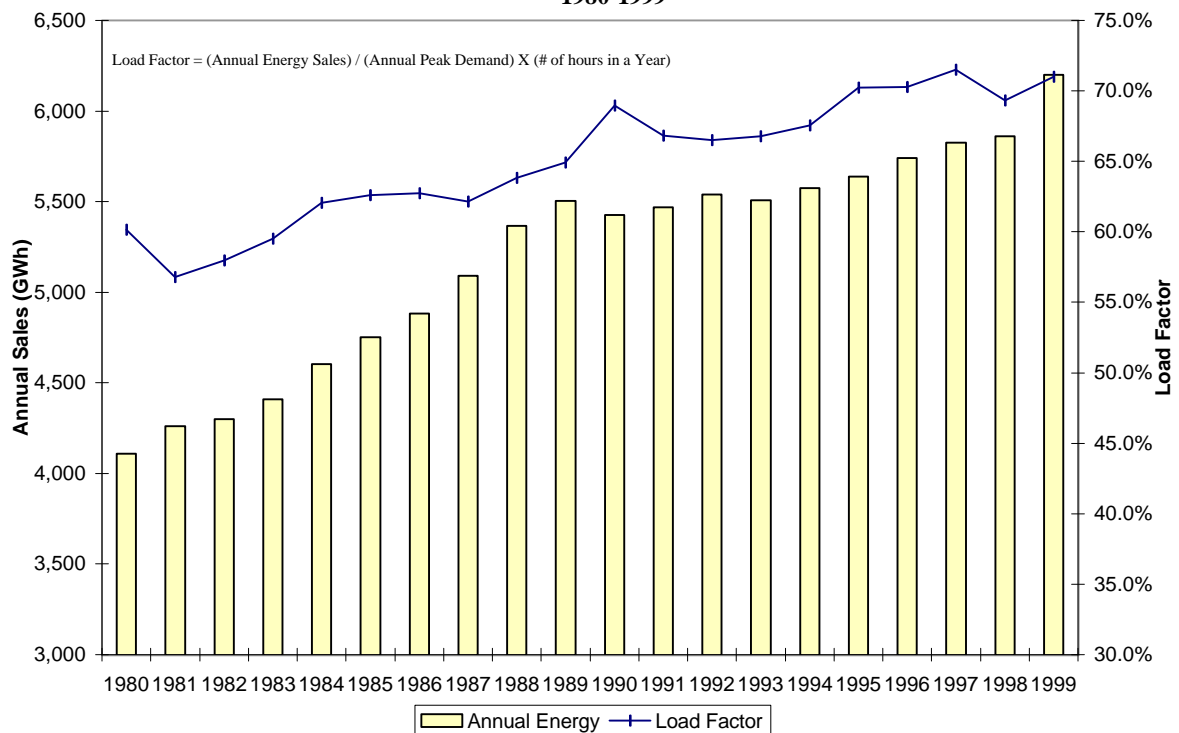
**Figure 2.2 Vermont Gross Electric Energy by Source
1980-1999
(Including Energy for Export)**



**Figure 2.3 Vermont Electric Utilities: Seasonal Peak Load MWs
1980-1999**



**Figure 2.4 Vermont Electric Utilities: Annual Load Factor and Annual Sales
1980-1999**



**Figure 2.5 Vermont Electric Utilities - GWH by Power Period
1993-1999**

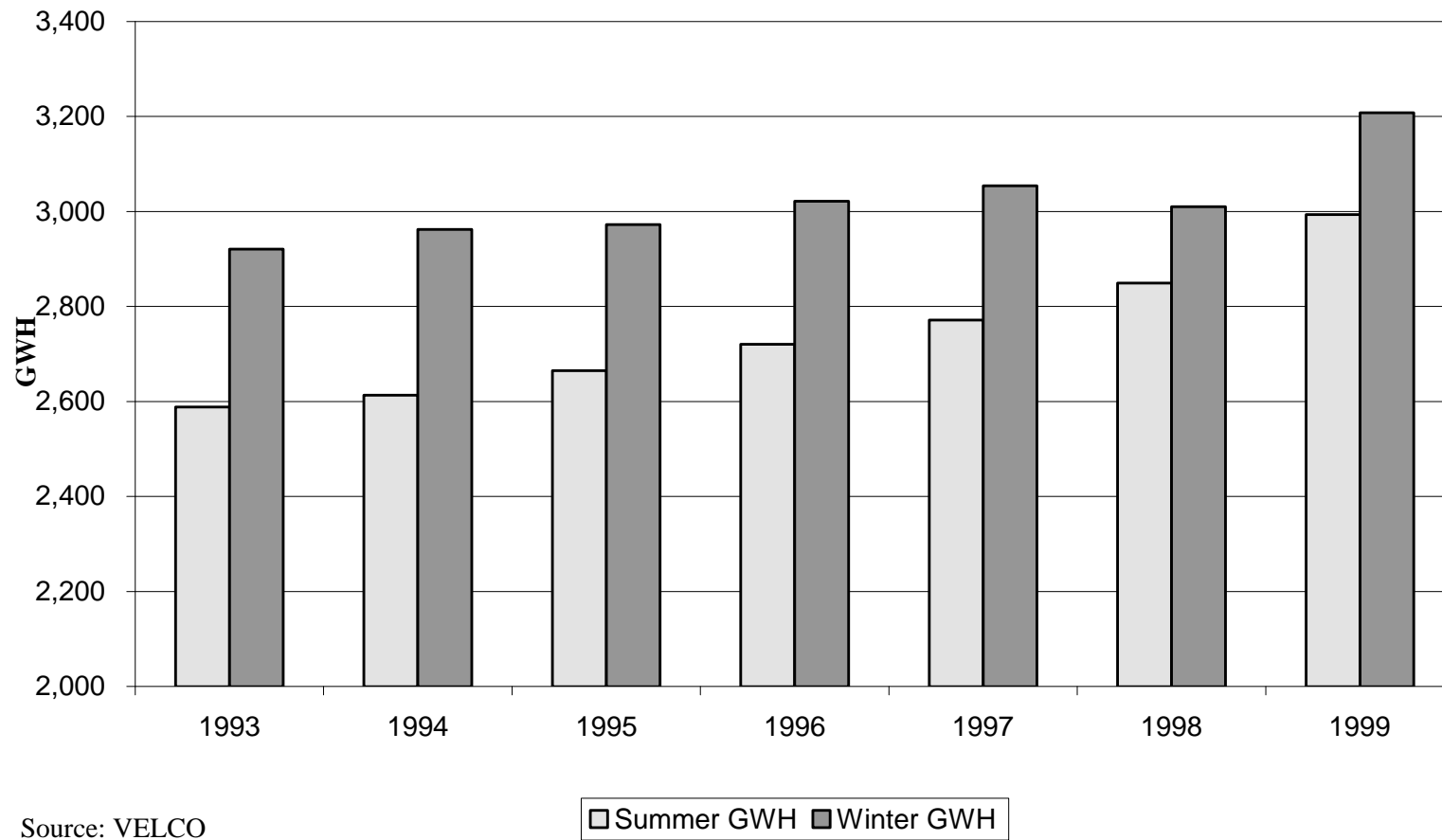
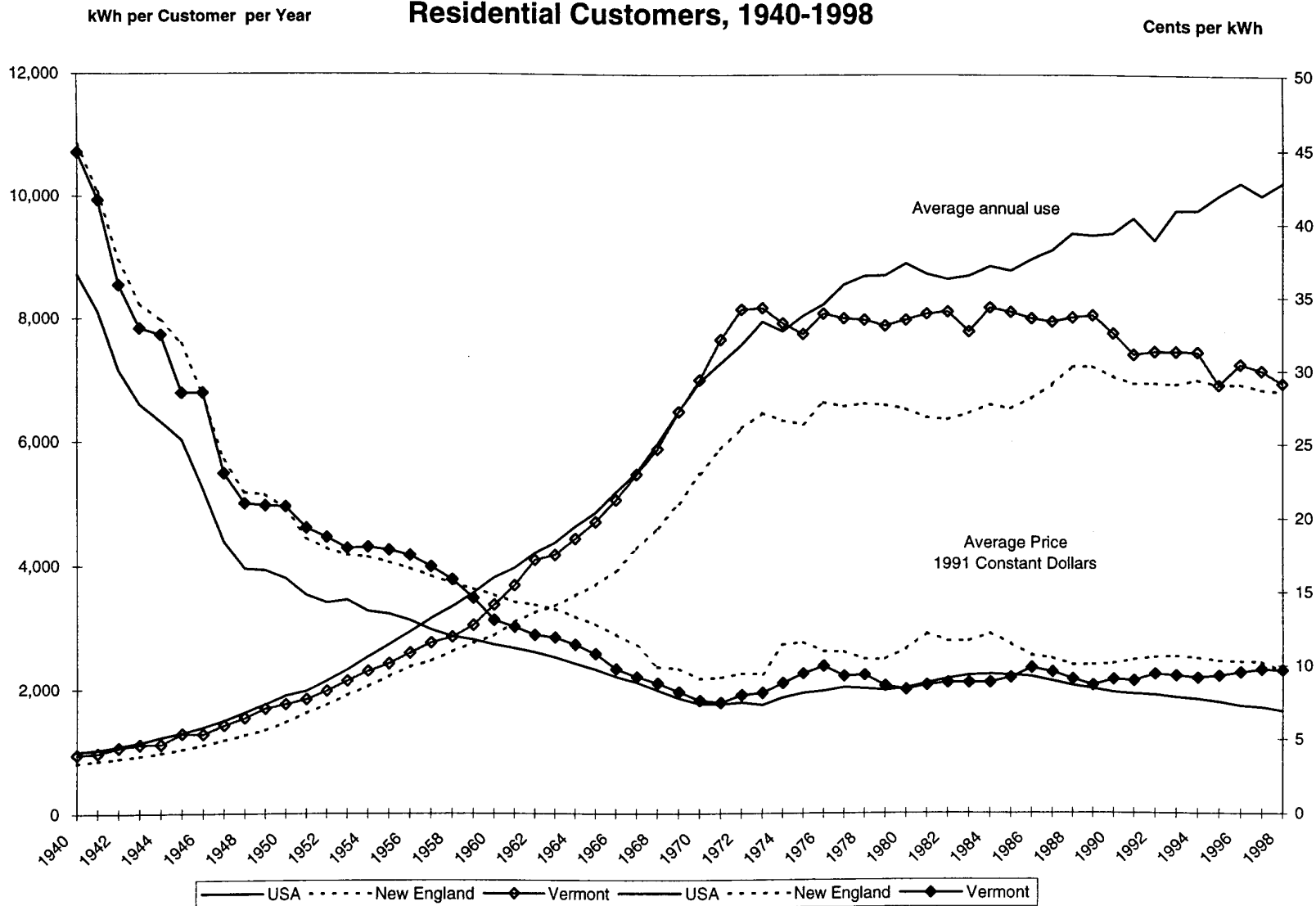


Figure 2.6 Revenue per kWh and Use per Customer
Residential Customers, 1940-1998



F. Reliability

Transmission. The Engineering Division is focusing on the reliability of facilities that deliver electricity to Vermont consumers. Of special interest are the efforts that Vermont Electric Power Company (VELCO) is making to provide reliable service in Vermont. VELCO has developed a number of measures that quantify the reliability and quality of service provided by its system, resulting in improved reliability and reduced cost of providing transmission service in Vermont. During the past several years, VELCO has installed new technologies that have significantly reduced the number of outages on its system. For example, high-speed relays have been added at strategic substations on the VELCO system, and these relays permit the rapid clearing of temporary faults or short-circuits.

In response to the 1994 failure of the PV-20 transmission line, VELCO conducted an extensive review of other potential, major contingencies - outages of other critical facilities - to identify vulnerable locations on the VELCO system. VELCO has initiated a number of steps to address problems in the weak areas of its system and has taken steps to prepare its system to rapidly respond to these unplanned, major contingencies.

Over the past two years, VELCO has focused much of its planning efforts on the reliability of the transmission system in northwest Vermont. VELCO has learned that, under certain scenarios, Chittenden County is vulnerable to certain multiple contingencies. Recent events, including the March 2000 loss of a phase-angle regulator (an electronic device to control current flows over PV-20) in Plattsburgh, New York, have highlighted this vulnerability. Also, Vermont's traditional load profile has changed from a purely winter peak to one in which the summer and the winter peaks are almost equal. This increase results from growth in the summer demand, especially in Chittenden County. As a consequence, the system load factor (average load divided by peak load) has increased steadily for the past seven years making transmission line maintenance more complex due to the difficulty of taking lines out of service. To address these issues, VELCO has taken a number of steps to improve its system. First, to compensate for the loss of the phase-angle regulator, VELCO has installed, on a temporary basis, a synchronous condenser at its Sand Bar switching station in Milton. Also, VELCO is presently installing a static compensator at its Essex substation. This device, expected to be on-line in May 2001, is a complex solid state device that will provide critical voltage support to the transmission system in the event of an unexpected loss of a transmission line.

VELCO, together with the Burlington Electric Department and Green Mountain Power, are also evaluating further options to address reliability concerns in the Chittenden County area as load continues to grow. Among these options are upgrades to existing lines, the addition of new, higher voltage lines within existing corridors, and strategically placed generation. The Department is strongly promoting a "one-company" approach to this issue to ensure that the plans for meeting anticipated new loads will provide reliable service for all customers and be the least-cost solution available.

Distribution. Public Service Board orders stress the importance of electric system reliability and anticipate the development of service quality standards and performance based rates. A necessary precursor for these initiatives is the measurement and reporting of reliability data on a uniform statewide basis. Uniform measurement and reporting allows for the evaluation of reliability trends, permits meaningful comparisons of reliability among utilities, and provides information valuable for the design and subsequent assessment of system upgrades and corrective measures.

As part of its ongoing efforts to improve Vermont's electric system reliability, the Department has worked closely with the state's electric utilities to develop statewide standards for electric system reliability measurement and reporting. This effort recently culminated in the approval by the Legislative Committee on Administrative Rules of Public Service Board Rule No. 4.900, Electricity Outage Reporting. This Rule will ensure that all of Vermont's electric utilities monitor, report, and assess their system reliability on a uniform

basis. The Department has also begun an effort to establish reliability standards for all of Vermont's electric utilities. To date, definitive standards have been stipulated to by Green Mountain Power Corporation.

G. Supply Sources

Vermont loads are supplied by ISO New England wholesale electricity market.¹¹ This is a Residual wholesale market meaning that to the extent that a participant in the marketplace produces electricity in excess of the demand of its customers, it can sell the excess into the wholesale market to other participants. Vermont's committed supply sources are a mix of fuel types, sizes, operating cycles, contracts, and owned units, these units are all bid into the wholesale market. Table 2.7 and Figures 2.1 and 2.2 show sources of energy purchased and produced by Vermont electric utilities for their customers.

Through 1999, Vermont received about one third of its energy from nuclear sources. The majority of this comes from the Vermont Yankee Nuclear Station, with the remainder from three other nuclear stations in New England, two of which have permanently ceased operation within the last two years. Vermonters are still receiving a small amount of energy from the Millstone 3 Nuclear Plant in Connecticut. Under orders issued by the FERC, Vermonters continue to pay the closure costs for recently closed nuclear plants (Maine Yankee and Connecticut Yankee) as well as Yankee-Rowe, which closed in 1991.

A significant portion of in-state generation comes from renewable resources, including utility owned hydro sites and the wood-fired McNeil Station, plus independent power producers using hydro, wind, landfill gas, and wood. Vermont has Independent Power Producers that meet the criteria under federal law, the Public Utility Regulatory Policies Act (PURPA), for Qualifying Facilities (QFs). QFs must produce electricity using renewable resources or they must cogenerate. Several small hydro facilities are QFs. The Vermont Electric Power Producers, Inc. (VEPPI) is designated by the PSB as the agent to solicit power from QFs, aggregate the electrical output, and sell it to Vermont utilities. Table 2.8 summarizes the current status of Vermont's QFs that are selling power to the state's utilities through VEPPI.

Table 2.8 Vermont's Qualifying Facilities, 2000 Estimates

Renewable Fuel Used	No. of Facilities	MW	MWh (Energy)	Revenue (\$ million)	Average Rate (cents/kWh)
Hydro	19	54.1	172,165	\$21.95	12.8
Wood	1	20.3	168,163	\$17.21	12.4

Source: DPS Planning Division

¹¹ ISO New England is a "day-ahead - hourly" marketplace. This means that wholesale electricity suppliers and generators will bid their resources into the market the day before and submit separate bids for each resource for each hour of the day. The bids are stacked in dollar terms from lowest to highest matching the expected hourly demand forecast for that hour and each hour in the next day. The ISO Operations staff will then determine the least cost dispatch sequence for the next day, which reflects the actual bids. Generators will then be dispatched to match the actual load occurring on the system. The highest bid resource that was dispatched to meet actual load sets the "market clearing price" for electricity. This is the price that will be paid to all suppliers by buyers who purchase power from the residual market. The competitiveness of the market is driven by the fact that if a supplier bids too high price for their resources, then the unit generator is not dispatched and the supplier receives no revenue. This encourages the supplier to bid the most competitive prices in order to compete for dispatch in the wholesale marketplace at http://www.iso-ne.com/about_the_iso.

Vermont Yankee Nuclear Power Station. Vermont Yankee (VY) began generating commercially in 1972 and is licensed to operate until 2012. It is a 540 MW boiling water reactor (BWR) and is located in Vernon, Vermont. VY has generated an average of more than 3.4 billion kWh annually, achieving a cumulative average output of over 80% of its maximum potential. The rolling three-year average cost is 4.86 cents per kWh.

The proposed sale of Vermont Yankee is reported in Section 2.B. This biennial period saw completed or proposed sales for nine other nuclear plants. The earliest nuclear plant sales, announced in mid-1999, were completed for relatively low purchase prices - Three Mile Island Unit 1 - \$23 million; Pilgrim - \$13 million; and Oyster Creek - \$10 million. Later sales announced in 2000 had higher prices - Indian Point 3 and Fitzpatrick - \$326 million; Millstone 2 and 3 - \$1.3 billion. A proposed sale of Nine Mile Point Units 1 and 2 for \$69 million was rejected by the New York Public Service Commission. In addition, this biennial period saw the beginnings of major structural changes in nuclear plant ownership. Some owners, such as the New England Electric System and Northeast Utilities, chose to leave the generation business. PECO Energy, part owner of AmerGen Energy, LLC, was in the process on merging with Unicom, to form Excelon Energy Company, the largest owner of nuclear plants in the country.

In January 1999, the Department issued Technical Report No. 43, Vermont Yankee Economic Study. This study evaluated the costs of continued operation versus the costs of premature closure. The results of the study showed that, while Vermont Yankee's operational costs were above those for market based power, it was even more expensive to prematurely close Vermont Yankee. Premature shutdown in October, 1999, was \$153 million more expensive than continued operation until the end of the operating license in 2012. The primary reason for these results was costs for decommissioning the plant.

Vermont continued as a member of the Texas, Maine, and Vermont Low-Level Radioactive Waste Compact. The Texas legislature in its 1999 session did not resolve facility siting issues. Consequently, no progress occurred regarding siting in Texas. Meanwhile South Carolina, in which the Barnwell disposal facility is located, joined with Connecticut and New Jersey to form the Atlantic Compact, a move which will eventually eliminate Barnwell as a disposal option for Vermont Yankee. However, Envirocare of Utah submitted amendments to the state of Utah to expand its disposal abilities to receive all categories of low-level radioactive waste. These amendments were pending at the end of the biennial period. The Department will continue to represent the interests of Vermont citizens in this area.

Removal and ultimate disposal of spent nuclear fuel from the Vermont Yankee site remains a continuing concern. VY expanded its existing fuel pool storage capacity to accommodate spent fuel until the year 2008. The U.S. Department of Energy (DOE) was contractually responsible to begin removal of spent fuel from nuclear plant sites in 1998 and has been found in breach of contract by the U.S. Court of Claims. Litigation for damages is continuing. Legislation introduced in the 105th and 106th Congresses would have established a centralized interim storage area in Nevada, while continuing to work for final disposal of spent fuel. This legislation was passed both houses of Congress by large bipartisan majorities, but did not go to conference committee because of a threatened presidential veto. The legislation is expected to be reintroduced in the 107th Congress. DPS continues to work in support of efforts to encourage the federal government to fulfill its obligation to remove spent fuel from the Vermont Yankee site.

Other Nuclear Power Stations. Four other nuclear power stations provide or have provided power to Vermont.

Yankee Rowe Nuclear Power Station, located three miles south of the Vermont-Massachusetts border, was closed permanently in 1991. Decommissioning is essentially complete, but spent nuclear fuel must remain on-site since the U.S. DOE refuses to remove spent fuel despite its contractual obligation to do so. Yankee-

Rowe is in the process of establishing onsite, passive (“dry cask”) storage. Final scheduled decommissioning payments ended in June 2000.

Connecticut Yankee closed in December, 1996, and Maine Yankee closed in August, 1997, and are in advanced stages of decommissioning. These plants, too, must store spent nuclear fuel on site. Vermonters continue to pay for uncollected decommissioning costs and unamortized investments for these closed nuclear plants.

Central Vermont Public Service (CVPS) has a small share (1.7303%) in Northeast Utilities’ (NU’s) Millstone 3 nuclear plant. In July, 2000, the results of an auction process administered by the Connecticut Department of Public Utilities Control (DPUC) were announced. The plant would be sold by its majority owners to Dominion Resources, Inc. for a reported purchase price of approximately \$1.3 billion. CVPS evaluated this transaction and elected not to sell its share of Millstone 3.

Coal. Vermont utilities' contract with the coal fired Merrimack II unit ended in 1998.

Oil and Gas. In addition to an ample supply of oil fired peaking facilities scattered throughout the state, Vermont utilities own shares of the Yarmouth 4 unit in Maine and the Stony Brook facility in Massachusetts. Vermont utilities have regularly purchased shorter-term contracts with other oil and gas fired units in New England. The prospect of retail competition and the reality of wholesale competition have sparked a flurry of power station proposals - fueled by natural gas - in New England. These power systems are far more efficient than the average of the existing fleet. Vermont consumers would have access to these sources. (See 4.A.)

Hydro-Québec. Hydro-Québec Vermont purchases power from Hydro-Québec (HQ) under a number of contracts. In 1990, the Public Service Board approved a contract between Hydro-Québec and Vermont utilities known as the Vermont Joint Owners (VJO). This contract provides for increasing purchases of power from 51 MW in 1994 to 310 MW by 2001. Recently, HQ has allowed Vermont utilities to sell back part of their contracted amounts, enabling them to purchase the power at more cost competitive prices. The bulk of the contract expires in 2015 with small amounts continuing to 2020. (See Section 2.B. for more on HQ.)

Other Power Contracts. In addition to contracts with HQ, Vermont utilities have a variety of short and medium-term contracts with neighboring utilities within NEPOOL and New York, shown in Table 2.7 under "Other Purchases." Vermont utilities are also involved in various types of sales with the region. Figure 2.1 shows a breakdown of instate use and sales or exports of power produced in Vermont.

Hydro. Vermont has 46 utility owned hydro sites and approximately 35 independently owned hydro sites that produce about 10% of its electric energy. All hydro facilities of significant size are licensed by the FERC. Recently several Vermont plants have had to renew their licenses. Generally, the relicensing process results in permit conditions that require owners of these plants to sacrifice some operating flexibility and production in order to mitigate the environmental impacts of their facilities. For some hydro facilities, this has resulted in a 10-20% loss of energy production.

Windpower. In late 1997, Green Mountain Power (GMP) commissioned the first utility-owned, commercial scale, wind generating station in the U.S. GMP received grants from U.S. DOE and the Electric Power Research Institute (EPRI) to support this work. The facility, located in Searsburg, Vermont, consists of 11 wind turbines with combined capacity of MW. The relative ease of siting these machines is attributed to GMP's extensive advance work with the community. This project has been a catalyst for further wind power development in New England. Recent estimates suggest that Vermont has the wind potential to satisfy as much as 10% of the state's electricity needs. The DPS issued a report in 1993 on wind power potential in Vermont and the wind industry based here.

Recently, Endless Energy, a Maine company with a long history of involvement in the wind industry, announced plans to revitalize the wind site on Equinox Mountain in Manchester. This site has been the host to several wind developments. Most recently it has been GMP's test site to develop machines capable of withstanding harsh winter environment. Endless Energy plans to redevelop the site and offer power for sale in the immediate area if this is authorized by Vermont law or regulation. Endless Energy has received permission to mount wind measurement devices.

Biomass/Wood. Vermont has over 70 MW of generating capacity from wood. The Burlington Electric Department McNeil Station is the largest (53 MW) utility-owned wood-fired generator in the U.S. It is an important instate generating source that creates a market for low grade wood and helps to insulate the state from volatility in prices and availability of other energy sources. It is also important for electric system reliability in Chittenden County. Since 1989, McNeil also has the capacity to fuel the boiler with natural gas as an alternative fuel.

In 1994, the McNeil joint owners, collaborating with a developer of innovative wood gasification technology, won a \$9.2 million grant from U.S. DOE to demonstrate this technology at McNeil. An experimental gasifier has been built at the McNeil Station. Gasification is a process that converts low quality feedstock into high quality fuel. It is scaled to produce 20 MW but is not a commercial model. Testing of the gasifier began in earnest in mid-1998. This effort mirrors similar experiments in Brazil, Hawaii, and Finland. This generation of gasifiers is expected to provide very high levels of efficiency, making wood, and biomass generally, a very viable fuel choice worldwide.

Ryegate Power Station produces 20 MW of power from wood. This privately owned, non-utility generation plant has been in operation since 1992. The public's increasing awareness of environmental impacts and degradation that result from fossil fuel generation make biomass fuels and generation plants like McNeil and Ryegate more attractive. (See Table 2.8 above; Ryegate is the state's QF that uses wood.)

Several facilities in Vermont have invested in wood energy systems. Camp Johnson (Vermont National Guard facility) has specified a modern wood chip-fired heating system. The Newport state office building will be heated by a modern wood chip system. The Montpelier wood-fired district energy system (Capitol complex) has installed an automated wood handling system.

Vermont Department of Forests, Parks & Recreation, a partner in the wood energy program with DPS, monitors forest harvest and the production of wood fuel on an annual basis as part of an effort to follow trends in sustainable forest use and status. This activity, combined with a periodic federal forest inventory of the state, provides a good picture of the present state of wood availability. The most recent forest inventory (1998) was published in December 2000.

Research done within the Community Regional Energy Program, with the DPS as a key partner, shows that responsible and efficient use of wood as a fuel results in no net emissions of carbon to the atmosphere when forests are managed as much of the forested land in Vermont presently is.

The wood energy program is estimated to generate or be associated with \$6 million to \$12 million per year, based on incomes obtained from wood chip sales and major project expenditures in Vermont. This range does not include the value of savings obtained from a shift from fossil fuels to a renewable fuel.

Methane Sources. When solid waste is disposed of at landfills, it decomposes into landfill gases that include methane, a flammable gas. Vermont has two landfill methane generating stations, located in Burlington and Brattleboro that convert this potent greenhouse gas into electricity.

Methane is also emitted from volatile solids or animal waste. Foster Brothers Farm, near Middlebury, produces electricity from the methane recovered from cow manure. In addition to producing energy and reducing the amount of methane emitted into the atmosphere, this process also reduces water pollution and produces a high quality fertilizer as a co-product

H. Demand Side Management

Electric Utility DSM Programs. For the reporting period ending December 31, 1999, Vermont electric utilities which filed 1999 Demand Side Management (DSM) Annual Reports disclose spending nearly \$93 million for DSM programs since 1991. These programs have reduced Vermont's annual electric use by 316,615 MWh or 5.4%, and the State's peak demand by 74 MW or about 7% of peak demand (roughly the amount used by all Vermont's municipal utilities except Burlington Electric Department). Stated another way, these programs produced enough electricity savings annually to serve 45,000 Vermont homes, or about 20% of the state's households. Savings from these programs have been achieved at an average utility cost of 4.1 cents/kWh, less than today's average market price for electricity. This is a significant achievement (For more information request DPS Technical Report No. 41, *Vermont Electric Utility Demand Side Management Accomplishments: History and Current Trends* available at <http://www.state.vt.us/psd/ee/ee13.htm>. Also see the DPS Web site for a copy of *The Power to Save* at <http://www.state.vt.us/psd/ee/rstdsmpl.htm>.

Table 2.9 Electric Utility DSM Programs: Costs and Savings 1998-1999

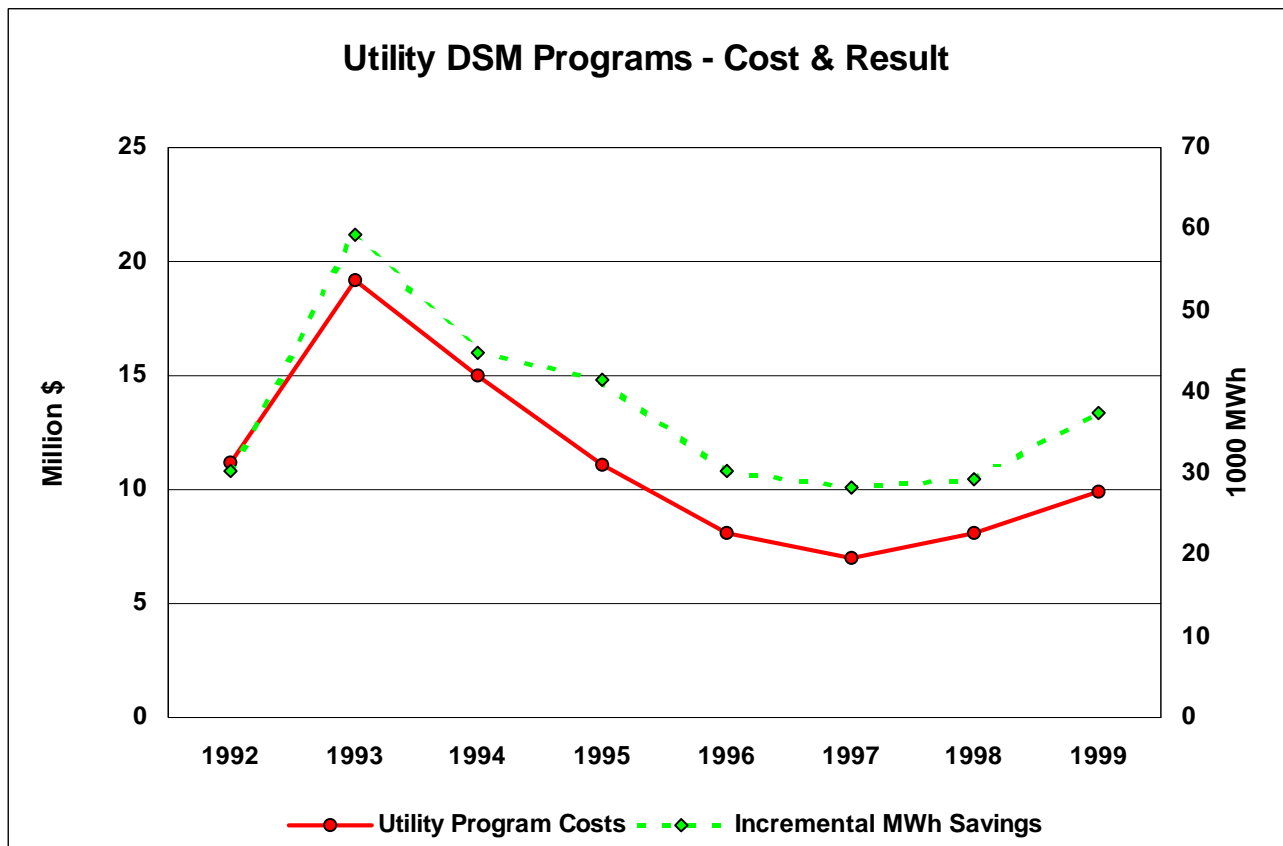
	1998			1999		
	Utility Cost	MWh Savings	Peak kW Savings	Utility Cost	MWh Savings	Peak kW Savings
BED	\$ 312,082	3,202	821	\$ 318,810	1,303	361
CVPS	\$3,336,436	11,689	2,153	\$4,377,103	17,059	2,951
CUC	\$1,695,251	3,286	701	\$2,264,055	5,011	1,124
GMP	\$1,782,954	8,287	1,494	\$1,646,041	9,396	2,178
WEC	\$ 215,752	489	126	\$ 211,874	445	113
VEC	\$ 595,125	1,666	492	\$ 671,120	2,503	589
VPPSA Systems	\$ 187,538	710	233	\$ 376,918	1,801	472
TOTAL	\$8,125,138	29,329	6,020	\$9,865,921	37,518	7,788

Note: Utility DSM costs shown above are annual expenditures reported by each utility in its Annual DSM Report. It is not the amount included in electric rates for 1998 or 1999. DSM costs in rates may include four components: recurring costs (salaries); the amortization expense of program costs for the past 5 years; an amount for utility lost revenue as a result of DSM; and, for investor owned utilities, shareholder return on the capitalized portion of DSM costs.

In March 2000 a statewide energy efficiency utility, Efficiency Vermont, started providing statewide energy efficiency programs on behalf of most Vermont electric utilities, operating under contract to the Vermont Public Service Board. An energy efficiency charge appearing on electric customers monthly bills funds EVT's programs and services. Projected costs and savings for the three year contract anticipate an estimated cost per kWh of less than three cents, and are in Table 2.9. Further information about Efficiency Vermont's programs and services can be found elsewhere in this document, by calling Efficiency Vermont toll-free at 1-888-921-5990 or visiting their Web site at <http://www.efficiencyvermont.com>.

Customers are also taking more control over their energy choices. Two examples of this trend are market transformation and customer generation. Market transformation represents the successful deployment into the market of energy efficiency. Customer generation is increasingly recommended to improve the economies of heating, cooling, and ventilating buildings. Customer generation is most prominent where natural gas is available.

Figure 2.7



Source: Annual DSM Reports

Vermont Gas Systems. As Vermont's only regulated gas utility, Vermont Gas Systems also is required by Vermont law to provide least cost service and to provide cost effective efficiency services to its customers. Through 1999, Vermont Gas reports spending \$ 6.4 million for DSM services that saved customers an estimated 199,958 Mcf annually, which represents about 20 % of its annual load. These savings were acquired at an average cost of \$0.18 per therm, well below the current market cost of natural gas.

Table 2.10A Vermont Electric Utilities: Condensed Operating Statements

1999

	Total Revenues	Operation Expenses	Maintenance Expenses	Depreciation Expense	Amortization Expense	Property Loss	Non Income Taxes	Federal Income Tax	Other Income Tax	Total Utility Operations Expense	Net Utility Operating Income	Total Other Income	Total Other Income & Deductions	Net Interest Charges	Net Income
Private															
CVPS	\$411,206,446	\$331,406,540	\$17,142,052	\$15,324,174	\$1,167,552	\$283,716	\$11,330,179	\$8,783,297	\$1,622,759	\$387,060,269	\$24,146,177	\$6,221,272	\$1,903,248	\$11,880,135	\$16,584,066
Citizens	\$26,573,844	\$21,325,017	\$1,498,531	\$2,986,604	\$0	\$0	\$1,571,369	(\$718,663)	(\$213,708)	\$26,449,150	\$124,694	\$51,308	\$1,537,869	\$17,883	(\$1,379,750)
GMP	\$251,047,462	\$210,979,463	\$7,398,013	\$9,003,062	\$7,184,031	\$0	\$7,295,038	\$1,650,020	(\$407,743)	\$243,101,884	\$7,945,578	(\$3,807,365)	\$19,396	\$7,182,714	(\$3,063,897)
Rochester	\$740,407	\$764,385	\$18,997	\$24,935	\$0	\$0	\$23,982	\$250	\$0	\$832,549	(\$92,142)	\$21,891	\$7,446	\$627	(\$78,324)
VMCO	\$16,136,187	\$9,655,655	\$571,801	\$1,151,618	\$0	\$0	\$582,362	\$1,603,381	\$0	\$13,564,817	\$2,571,370	\$0	\$0	\$0	\$2,571,370
Subtotal	\$705,704,346	\$574,131,060	\$26,629,394	\$28,490,393	\$8,351,583	\$283,716	\$20,802,930	\$11,318,285	\$1,001,308	\$671,008,669	\$34,695,677	\$2,487,106	\$3,467,959	\$19,081,359	\$14,633,465
Municipal															
Barton	\$1,700,490	\$1,214,769	\$57,958	\$137,963	\$9,989	\$0	\$79,971	\$0	\$0	\$1,500,650	\$199,840	\$19,120	\$291	\$106,978	\$111,691
BED	\$38,958,846	\$26,557,720	\$1,848,290	\$2,385,116	\$171,887	\$912,683	\$1,460,089	\$0	\$0	\$33,335,785	\$5,623,061	\$1,226,820	\$9,379	\$5,794,162	\$1,046,340
Enosburg	\$2,082,076	\$1,661,890	\$120,799	\$169,153	\$1,097	\$0	\$47,311	\$0	\$0	\$2,000,250	\$81,826	\$64,740	\$0	\$110,756	\$35,810
Hardwick	\$3,349,451	\$2,597,439	\$219,668	\$215,253	\$26,066	\$0	\$195,902	\$0	\$0	\$3,254,328	\$95,123	\$19,636	\$0	\$159,685	(\$44,926)
Hyde Park	\$959,199	\$822,505	\$35,332	\$79,675	\$0	\$0	\$35,848	\$0	\$0	\$973,360	(\$14,161)	\$9,407	\$0	\$0	(\$4,754)
Jacksonville	\$588,268	\$322,395	\$135,654	\$20,496	\$0	\$0	\$27,351	\$0	\$0	\$505,896	\$82,372	\$5,172	\$0	\$6,987	\$80,557
Johnson	\$1,316,785	\$965,666	\$40,321	\$50,330	\$625	\$0	\$29,179	\$0	\$0	\$1,086,121	\$230,664	\$61,596	\$0	\$1,156	\$291,104
Ludlow	\$4,052,247	\$3,633,154	\$98,154	\$223,279	\$0	\$0	\$142,178	\$0	\$0	\$4,096,765	(\$44,518)	\$109,475	\$0	(\$3,782)	\$68,739
Lyndonville	\$6,515,676	\$5,889,687	\$312,221	\$314,031	\$114,168	\$0	\$260,712	\$0	\$0	\$6,890,819	(\$375,143)	\$448,957	\$0	\$36,124	\$37,690
Morrisville	\$4,618,168	\$3,865,313	\$224,270	\$417,228	\$0	\$0	\$111,419	\$0	\$0	\$4,618,230	(\$62)	\$260,479	\$0	\$188,451	\$71,966
Northfield	\$2,836,864	\$2,399,287	\$61,042	\$85,367	\$10,828	\$0	\$68,249	\$0	\$0	\$2,624,773	\$212,091	\$13,044	\$0	\$90,995	\$134,140
Orleans	\$1,659,649	\$1,465,260	\$37,805	\$13,499	\$4,562	\$0	\$32,526	\$0	\$0	\$1,553,652	\$105,997	\$23,951	\$0	\$2,238	\$127,710
Readsboro	\$209,762	\$188,888	\$0	\$3,175	\$0	\$0	\$4,188	\$0	\$0	\$196,251	\$13,511	\$81	\$0	\$639	\$12,953
Stowe	\$6,377,937	\$6,033,416	\$57,258	\$205,594	\$2,883	\$0	\$98,168	\$0	\$0	\$6,397,319	(\$19,382)	\$254,377	\$0	\$57,646	\$177,349
Swanton	\$5,901,712	\$2,978,372	\$263,691	\$630,444	\$39,404	\$0	\$317,259	\$0	\$0	\$4,229,170	\$1,672,542	\$237,726	\$0	\$1,277,652	\$632,616
Subtotal	\$81,127,130	\$60,595,761	\$3,512,463	\$4,950,603	\$381,509	\$912,683	\$2,910,350	\$0	\$0	\$73,263,369	\$7,863,761	\$2,754,581	\$9,670	\$7,829,687	\$2,778,985
Cooperatives															
VEC	\$15,781,517	\$11,454,085	\$982,055	\$1,289,903	\$0	\$0	\$584,022	\$0	\$0	\$14,310,065	\$1,471,452	\$238,124	\$376,459	\$1,688,328	(\$355,211)
WEC	\$9,176,208	\$6,224,611	\$768,403	\$969,039	\$0	\$0	\$120,217	\$0	\$0	\$8,082,270	\$1,093,938	\$192,762	\$61,531	\$847,661	\$377,508
Subtotal	\$24,957,725	\$17,678,696	\$1,750,458	\$2,258,942	\$0	\$0	\$704,239	\$0	\$0	\$22,392,335	\$2,565,390	\$430,886	\$437,990	\$2,535,989	\$22,297
Total	\$811,789,201	\$652,405,517	\$31,892,315	\$35,699,938	\$8,733,092	\$1,196,399	\$24,417,519	\$11,318,285	\$1,001,308	\$766,664,373	\$45,124,828	\$5,672,573	\$3,915,619	\$29,447,035	\$17,434,747
Vt. Yankee	\$208,811,573	\$113,527,419	\$40,232,173	\$27,445,756	\$20,412	\$1,065,560	\$9,684,980	\$6,840,455	(\$4,937,294)	\$193,879,461	\$14,932,112	\$4,831,635	\$1,869,135	\$11,423,946	\$6,470,666
VELCO	\$29,874,410	\$18,362,798	\$2,676,508	\$4,117,741	(\$18,504)	\$0	\$2,357,629	\$865,749	(\$1,120,068)	\$27,241,853	\$2,632,557	\$660,298	(\$177,725)	\$2,249,989	\$1,220,591

Source: Annual Reports

Table 2.10B Vermont Electric Utilities: Condensed Operating Statements

1998

Total Revenue	Operation Expenses	Maintenance Expenses	Depreciation Expense	Amortization Expense	Property Loss	Non Income Taxes	Federal Income Tax	Other Income Tax	Total Utility Operations Expense	Net Utility Operating Income	Total Other Income	Net Other Income & Deductions	Net Interest Charges	Net Income
\$297,661,526	\$247,906,217	\$15,070,902	\$14,722,252	\$1,543,844	\$283,716	\$11,801,041	(\$1,724,772)	\$1,043,152	\$290,646,352	\$7,015,174	\$8,635,604	\$1,642,929	\$10,023,976	\$3,983,873
\$24,604,548	\$21,007,112	\$1,158,407	\$2,531,738	\$0	\$0	\$1,467,464	(\$889,376)	(\$254,449)	\$25,020,896	(\$416,348)	\$64,422	\$1,956,798	\$19,324	(\$2,328,048)
\$184,304,226	\$151,267,324	\$5,630,542	\$9,099,056	\$6,959,756	\$0	\$7,242,738	(\$719,168)	(\$648,222)	\$178,832,026	\$5,472,200	\$1,591,696	\$2,064,421	\$7,876,953	(\$2,877,478)
\$697,405	\$690,037	\$17,774	\$20,979	\$0	\$0	\$23,365	\$150	\$0	\$752,305	(\$54,900)	\$31,796	\$1,166	\$1,382	(\$25,652)
\$14,373,801	\$8,318,457	\$646,711	\$1,151,708	\$0	\$0	\$560,881	\$873,000	\$0	\$11,550,757	\$2,823,044	\$0	\$0	\$0	\$2,823,044
\$521,641,506	\$429,189,147	\$22,524,336	\$27,525,733	\$8,503,600	\$283,716	\$21,095,489	(\$2,460,166)	\$140,481	\$506,802,336	\$14,839,170	\$10,323,518	\$5,665,314	\$17,921,635	\$1,575,739
\$1,656,193	\$1,184,651	\$74,043	\$114,123	\$3,134	\$0	\$79,317	\$0	\$0	\$1,455,268	\$200,925	\$113,531	\$0	\$146,753	\$167,703
\$37,808,854	\$25,989,781	\$1,840,800	\$2,309,569	\$171,273	\$829,221	\$1,410,206	\$0	\$0	\$32,550,850	\$5,258,004	\$1,585,106	\$15,489	\$5,949,352	\$878,269
\$1,885,637	\$1,556,488	\$51,537	\$160,343	\$1,097	\$0	\$46,854	\$0	\$0	\$1,816,319	\$69,318	\$68,993	\$0	\$128,677	\$9,634
\$3,234,677	\$2,448,017	\$207,309	\$233,697	\$29,285	\$0	\$190,163	\$0	\$0	\$3,108,471	\$126,206	\$36,447	\$0	\$164,348	(\$1,695)
\$909,850	\$740,798	\$41,885	\$82,571	\$0	\$0	\$35,406	\$0	\$0	\$900,660	\$9,190	\$9,454	\$0	\$0	\$18,644
\$588,359	\$329,368	\$119,262	\$20,496	\$0	\$0	\$24,378	\$0	\$0	\$493,504	\$94,855	\$2,484	\$0	\$11,122	\$86,217
\$1,298,341	\$1,056,691	\$37,874	\$45,065	\$5,481	\$0	\$28,674	\$0	\$0	\$1,173,785	\$124,556	\$47,873	\$0	\$1,729	\$170,700
\$3,951,495	\$3,395,210	\$62,023	\$218,103	\$0	\$0	\$149,237	\$0	\$0	\$3,824,573	\$126,922	\$91,165	\$0	\$31,885	\$186,202
\$5,955,216	\$5,582,850	\$281,272	\$309,124	\$114,168	\$0	\$231,684	\$0	\$0	\$6,519,098	(\$563,882)	\$346,412	\$0	\$54,760	(\$272,230)
\$4,502,901	\$3,516,716	\$249,707	\$411,357	\$0	\$0	\$166,036	\$0	\$0	\$4,343,816	\$159,085	\$248,232	\$0	\$220,324	\$186,993
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$1,599,241	\$1,519,360	\$60,404	\$17,849	\$0	\$0	\$28,134	\$0	\$0	\$1,625,747	(\$26,506)	\$32,019	\$0	\$1,222	\$4,291
\$202,276	\$200,597	\$0	\$3,175	\$0	\$0	\$3,780	\$0	\$0	\$207,552	(\$5,276)	\$0	\$0	\$1,004	(\$6,280)
\$5,757,616	\$5,546,506	\$45,516	\$196,144	\$2,883	\$0	\$89,723	\$0	\$0	\$5,880,772	(\$123,156)	\$537,242	\$0	\$61,145	\$352,941
\$6,067,002	\$2,517,580	\$248,833	\$609,934	\$39,404	\$0	\$321,186	\$0	\$0	\$3,736,937	\$2,330,065	\$222,755	\$0	\$1,408,901	\$1,143,919
\$75,417,658	\$55,584,613	\$3,320,465	\$4,731,550	\$366,725	\$829,221	\$2,804,778	\$0	\$0	\$67,637,352	\$7,780,306	\$3,341,713	\$15,489	\$8,181,222	\$2,925,308
\$15,208,903	\$8,359,998	\$884,715	\$1,240,748	\$0	\$0	\$472,206	\$0	\$0	\$10,957,667	\$4,251,236	\$290,705	\$317,083	\$1,734,747	\$2,490,111
\$8,442,485	\$6,088,789	\$745,869	\$924,064	\$0	\$0	\$114,852	\$0	\$0	\$7,873,574	\$568,911	\$368,743	\$20,649	\$846,667	\$70,338
\$23,651,388	\$14,448,787	\$1,630,584	\$2,164,812	\$0	\$0	\$587,058	\$0	\$0	\$18,831,241	\$4,820,147	\$659,448	\$337,732	\$2,581,414	\$2,560,449
\$620,710,552	\$499,222,547	\$27,475,385	\$34,422,095	\$8,870,325	\$1,112,937	\$24,487,325	(\$2,460,166)	\$140,481	\$593,270,929	\$27,439,623	\$14,324,679	\$6,018,535	\$28,684,271	\$7,061,496
\$195,249,065	\$105,342,331	\$34,494,232	\$28,960,790	\$20,400	\$703,577	\$8,222,837	\$8,648,738	(\$6,425,481)	\$179,967,424	\$15,281,641	\$5,379,926	\$2,140,280	\$11,396,285	\$7,125,002
\$35,283,990	\$24,356,644	\$1,928,998	\$3,890,030	\$136,659	\$0	\$2,349,248	\$0	(\$68,407)	\$32,593,172	\$2,690,818	\$723,232	(\$64,110)	\$2,324,715	\$1,153,445

Table 2.11A Vermont Electric Utilities: Condensed Balance Sheets
1999

	Total Utility Plant	Less: Depreciation & Amortization	Net Utility Plant	Other Property & Investments	Current & Accrued Assets	Deferred Debits	Total Assets & Other Debits	Proprietary Capital	Long-Term Debt	Noncurrent & Cur. Accrued Liabilities	Deferred Income Tax	Deferred Credits	Total Liabilities & Other Credits
Private													
CVPS	\$473,039,858	(\$167,367,758)	\$305,672,100	\$67,528,878	\$102,715,911	\$85,872,783	\$561,789,672	\$209,320,347	\$164,800,000	\$89,277,057	\$59,547,888	\$38,844,380	\$561,789,672
Citizens	\$62,035,923	(\$22,147,205)	\$39,888,718	\$165,782	\$4,903,898	\$16,090,110	\$61,048,508	\$53,124,782	\$2,054	\$2,447,106	\$5,207,870	\$266,696	\$61,048,508
GMP	\$295,749,428	(\$102,854,181)	\$192,895,247	\$32,151,682	\$36,429,083	\$79,604,970	\$341,080,982	\$115,079,779	\$88,500,000	\$57,995,291	\$33,834,158	\$45,671,754	\$341,080,982
Rochester	\$853,425	(\$671,625)	\$181,800	\$231,138	\$186,488	\$58,171	\$657,597	\$552,150	\$0	\$103,753	\$0	\$1,694	\$657,597
VMCO	\$28,187,512	(\$13,029,700)	\$15,157,812	\$481,196	\$590,662	\$208,756	\$16,438,426	\$2,478,674	\$10,265,000	\$3,694,752	\$0	\$0	\$16,438,426
Subtotal	\$859,866,146	(\$306,070,469)	\$553,795,677	\$100,558,676	\$144,826,042	\$181,834,790	\$981,015,185	\$380,555,732	\$263,567,054	\$153,517,959	\$98,589,916	\$84,784,524	\$981,015,185
Municipal													
Barton	\$6,154,436	(\$2,347,905)	\$3,806,531	\$0	\$1,043,552	\$209,150	\$5,059,233	\$711,691	\$3,985,000	\$332,484	\$0	\$30,058	\$5,059,233
BED	\$85,227,315	(\$40,619,740)	\$44,607,575	\$14,827,483	\$14,118,709	\$52,136,809	\$125,690,576	\$35,229,606	\$84,242,276	\$6,104,099	\$0	\$114,595	\$125,690,576
Enosburg	\$5,149,010	(\$2,186,000)	\$2,963,010	\$0	\$783,105	\$13,497	\$3,759,612	\$1,140,467	\$1,247,210	\$1,360,960	\$0	\$10,975	\$3,759,612
Hardwick	\$7,239,529	(\$4,631,481)	\$2,608,048	\$337,798	\$659,695	\$83,685	\$3,689,226	\$634,974	\$2,245,556	\$808,696	\$0	\$0	\$3,689,226
Hyde Park	\$1,813,398	(\$1,093,580)	\$719,818	\$300	\$346,504	\$0	\$1,066,622	\$797,625	\$102,896	\$117,976	\$0	\$48,125	\$1,066,622
Jacksonville	\$1,050,638	(\$516,066)	\$534,572	\$0	\$180,055	\$0	\$714,627	\$653,619	\$0	\$61,008	\$0	\$0	\$714,627
Johnson	\$1,187,610	(\$552,028)	\$635,582	\$0	\$1,606,809	\$24,370	\$2,266,760	\$2,021,809	\$0	\$175,598	\$0	\$69,353	\$2,266,760
Ludlow	\$6,136,339	(\$3,353,692)	\$2,782,647	\$61,766	\$2,682,629	\$6,008	\$5,533,050	\$3,757,753	\$84,317	\$756,809	\$0	\$934,171	\$5,533,050
Lyndonville	\$8,899,917	(\$4,930,186)	\$3,969,731	\$1,512,777	\$1,139,615	\$227,754	\$6,849,877	\$6,037,361	\$182,314	\$630,202	\$0	\$0	\$6,849,877
Morrisville	\$12,870,225	(\$6,931,267)	\$5,938,958	\$3,345,885	\$1,092,695	\$589,129	\$10,966,667	\$7,502,622	\$2,642,529	\$764,320	\$0	\$57,196	\$10,966,667
Northfield	\$3,812,837	(\$1,387,517)	\$2,425,320	\$22,927	\$1,045,707	\$58,126	\$3,552,080	\$1,190,532	\$1,175,000	\$1,186,548	\$0	\$0	\$3,552,080
Orleans	\$767,091	(\$650,730)	\$116,361	\$1,630	\$847,856	\$95,812	\$1,061,659	\$929,504	\$120,489	\$11,666	\$0	\$0	\$1,061,659
Readsboro	\$31,750	(\$13,298)	\$18,452	\$2,580	\$29,275	\$0	\$50,307	\$20,241	\$7,753	\$20,187	\$0	\$2,126	\$50,307
Stowe	\$6,892,994	(\$3,270,497)	\$3,622,497	\$391,062	\$1,790,637	\$13,726	\$5,817,922	\$4,415,179	\$659,536	\$743,207	\$0	\$0	\$5,817,922
Swanton	\$28,089,106	(\$7,394,757)	\$20,694,349	\$4,398,086	\$2,321,494	\$0	\$27,413,929	\$7,962,683	\$19,410,022	\$41,224	\$0	\$0	\$27,413,929
Subtotal	\$175,322,195	(\$79,878,744)	\$95,443,451	\$24,902,294	\$29,688,337	\$53,458,066	\$203,492,147	\$73,005,666	\$116,104,898	\$13,114,984	\$0	\$1,266,599	\$203,492,147
Coops													
VEC	\$47,260,570	(\$16,805,172)	\$30,455,398	\$627,136	\$3,142,819	\$1,913,358	\$36,138,711	\$13,810,865	\$20,025,000	\$2,245,929	\$0	\$56,917	\$36,138,711
WEC	\$32,808,163	(\$9,259,065)	\$23,549,098	\$1,599,649	\$2,358,995	\$1,720,769	\$29,228,511	\$11,401,239	\$16,897,215	\$908,274	\$0	\$21,783	\$29,228,511
Subtotal	\$80,068,733	(\$26,064,237)	\$54,004,496	\$2,226,785	\$5,501,814	\$3,634,127	\$65,367,222	\$25,212,104	\$36,922,215	\$3,154,203	\$0	\$78,700	\$65,367,222
Total	\$1,115,257,074	(\$412,013,450)	\$703,243,624	\$127,687,755	\$180,016,193	\$238,926,983	\$1,249,874,554	\$478,773,502	\$416,594,167	\$169,787,146	\$98,589,916	\$86,129,823	\$1,249,874,554
Yankee	\$864,602,183	(\$733,175,223)	\$131,426,960	\$104,327,453	\$45,824,059	\$367,576,651	\$649,155,123	\$53,927,727	\$120,785,552	\$64,068,248	\$39,175,113	\$371,198,483	\$649,155,123
VELCO	\$102,273,666	(\$58,903,708)	\$43,369,958	\$3,138,945	\$20,111,770	\$673,812	\$67,294,485	\$8,563,120	\$30,128,666	\$26,157,782	\$446,254	\$1,998,663	\$67,294,485

Source: Annual Reports

Table 2.11B Vermont Electric Utilities: Condensed Balance Sheets
1998

	Total Utility Plant	Less: Depreciation & Amortization	Net Utility Plant	Other Property & Investments	Current & Accrued Assets	Deferred Debits	Total Assets & Other Debits	Proprietary Capital	Long-Term Debt	Noncurrent & Cur. Accrued Liabilities	Deferred Income Tax	Deferred Credits	Total Liabilities & Other Credits
Private													
CVPS	\$473,137,327	(\$162,314,026)	\$310,823,301	\$65,280,394	\$64,665,367	\$89,072,032	\$529,841,094	\$205,600,951	\$92,800,000	\$128,251,601	\$43,972,113	\$59,216,429	\$529,841,094
Citizens	\$61,528,313	(\$20,680,265)	\$40,848,048	\$132,077	\$4,495,857	\$13,467,760	\$58,943,742	\$49,615,742	\$5,175	\$3,685,043	\$5,310,351	\$327,431	\$58,943,742
GMP	\$290,159,336	(\$94,603,653)	\$195,555,683	\$39,459,575	\$41,427,411	\$67,974,687	\$344,417,356	\$122,839,824	\$90,200,000	\$54,423,312	\$31,690,012	\$45,264,208	\$344,417,356
Rochester	\$836,889	(\$649,474)	\$187,415	\$219,867	\$265,798	\$59,146	\$732,226	\$630,474	\$0	\$100,058	\$1,694	\$0	\$732,226
VMCO	\$28,206,035	(\$11,930,782)	\$16,275,253	\$389,481	\$796,885	\$139,212	\$17,600,831	\$4,305,881	\$10,745,000	\$2,549,950	\$0	\$0	\$17,600,831
Subtotal	\$853,867,900	(\$290,178,200)	\$563,689,700	\$105,481,394	\$111,651,318	\$170,712,837	\$951,535,249	\$382,992,872	\$193,750,175	\$189,009,964	\$80,974,170	\$104,808,068	\$951,535,249
Municipal													
Barton	\$4,605,277	(\$2,160,585)	\$2,444,692	\$0	\$2,342,393	\$203,025	\$4,990,110	\$606,311	\$4,045,000	\$325,363	\$0	\$13,436	\$4,990,110
BED	\$83,652,536	(\$36,439,465)	\$47,213,071	\$17,069,193	\$15,135,223	\$53,880,169	\$133,297,656	\$33,685,149	\$92,151,103	\$7,361,199	\$0	\$100,205	\$133,297,656
Enosburg	\$4,356,507	(\$2,016,847)	\$2,339,660	\$0	\$515,858	\$15,560	\$2,871,078	\$509,076	\$1,322,866	\$1,039,136	\$0	\$0	\$2,871,078
Hardwick	\$6,977,508	(\$4,381,788)	\$2,595,720	\$325,348	\$649,801	\$92,305	\$3,663,174	\$636,670	\$2,377,800	\$648,704	\$0	\$0	\$3,663,174
Hyde Park	\$1,771,434	(\$1,015,436)	\$755,998	\$300	\$353,543	\$0	\$1,109,841	\$811,188	\$142,983	\$106,170	\$0	\$49,500	\$1,109,841
Jacksonville	\$1,053,067	(\$495,569)	\$557,498	\$0	\$196,203	\$0	\$753,701	\$573,061	\$180,640	\$0	\$0	\$0	\$753,701
Johnson	\$1,073,387	(\$513,761)	\$559,626	\$0	\$1,303,403	\$24,995	\$1,888,024	\$1,701,274	\$0	\$128,061	\$0	\$58,688	\$1,888,024
Ludlow	\$5,323,690	(\$3,130,413)	\$2,193,277	\$261,039	\$2,190,767	\$6,933	\$4,652,016	\$3,507,711	\$100,984	\$833,083	\$0	\$210,238	\$4,652,016
Lyndonville	\$8,575,079	(\$4,760,546)	\$3,814,533	\$1,719,076	\$1,203,746	\$22,198	\$6,759,553	\$5,722,629	\$276,397	\$563,753	\$0	\$196,774	\$6,759,553
Morrisville	\$12,571,568	(\$6,517,824)	\$6,053,744	\$780,717	\$1,114,062	\$497,675	\$8,446,198	\$5,112,616	\$2,689,410	\$620,620	\$0	\$23,552	\$8,446,198
Northfield	\$3,812,837	(\$1,387,517)	\$2,425,320	\$22,927	\$1,045,707	\$58,126	\$3,552,080	\$1,190,532	\$1,175,000	\$1,186,548	\$0	\$0	\$3,552,080
Orleans	\$699,579	(\$621,153)	\$78,426	\$1,630	\$933,229	\$0	\$1,013,285	\$770,385	\$0	\$232,614	\$0	\$10,286	\$1,013,285
Readsboro	\$31,750	(\$13,298)	\$18,452	\$0	\$18,876	\$0	\$37,328	(\$4,405)	\$14,416	\$20,445	\$0	\$6,872	\$37,328
Stowe	\$6,562,611	(\$3,064,903)	\$3,497,708	\$534,883	\$1,736,137	\$16,608	\$5,785,336	\$4,237,830	\$757,347	\$641,391	\$0	\$148,768	\$5,785,336
Swanton	\$27,876,866	(\$6,764,313)	\$21,112,553	\$3,988,878	\$2,258,674	\$0	\$27,360,105	\$7,330,067	\$19,941,166	\$88,872	\$0	\$0	\$27,360,105
Subtotal	\$168,943,696	(\$73,283,418)	\$95,660,278	\$24,703,991	\$30,997,622	\$54,817,594	\$206,179,485	\$66,390,094	\$125,175,112	\$13,795,959	\$0	\$818,319	\$206,179,485
VEC	\$45,291,453	(\$16,030,842)	\$29,260,611	\$2,248,570	\$5,035,093	\$1,835,979	\$38,380,253	\$13,815,173	\$22,900,500	\$1,598,894	\$0	\$65,686	\$38,380,253
WEC	\$31,738,606	(\$8,698,982)	\$23,039,624	\$1,581,273	\$2,180,242	\$1,838,049	\$28,639,188	\$10,901,667	\$16,745,509	\$887,779	\$0	\$104,233	\$28,639,188
Subtotal	\$77,030,059	(\$24,729,824)	\$52,300,235	\$3,829,843	\$7,215,335	\$3,674,028	\$67,019,441	\$24,716,840	\$39,646,009	\$2,486,673	\$0	\$169,919	\$67,019,441
Total	\$1,099,841,655	(\$388,191,442)	\$711,650,213	\$134,015,228	\$149,864,275	\$229,204,459	\$1,224,734,175	\$474,099,806	\$358,571,296	\$205,292,596	\$80,974,170	\$105,796,306	\$1,224,734,175
Yankee	\$834,637,313	(\$705,930,429)	\$128,706,884	\$99,376,030	\$36,946,739	\$335,123,258	\$600,152,911	\$54,643,388	\$116,864,838	\$48,736,805	\$41,779,603	\$338,128,277	\$600,152,911
VELCO	\$98,237,292	(\$55,919,995)	\$42,317,297	\$3,495,920	\$20,964,652	\$1,011,734	\$67,789,603	\$8,967,529	\$33,644,151	\$21,419,706	\$1,262,041	\$2,496,176	\$67,789,603

Source: Annual Reports

3. TELECOMMUNICATIONS

A. Status of Local Competition

Vermont statutes and both the 1996 and the 2000 *Vermont Telecommunications Plans* proposed effective competition as a means to improve services and lower prices for Vermonters. Vermont was among the first states to have competition for instate toll services. With the passage of the Telecommunications Act of 1996, Congress has made local competition possible, and local competitors can begin to compete with Verizon Vermont. While Vermont has yet to see local telephone service competition in the residential market, we are beginning to see competitive entries into the business market.

As of April 1, 2000 the Public Service Board (PSB or Board) has approved Certificates of Public Good (CPGs) for forty-five competitive local exchange companies (CLECs) in Vermont, and there are eight CPG applications pending at the Board. At least fifty competitive companies have reached interconnection agreements spelling out the terms of network use with Verizon, and there are three additional agreements pending with the Board. Three companies, Adelphia Business Solutions (ABS), Lightship Telecom, and CTC Communications Corporation (CTC) are currently competing for business customers, offering combinations of their own facilities and resale of incumbent lines and unbundled network elements. All offer asynchronous transfer mode (ATM) services. ABS and Lightship Telecom have ATM switches in Vermont. CTC's switch is in Massachusetts.

Docket 5713 Phase II Proceedings. The PSB's sweeping local competition and interconnection Docket 5713, has concluded after over two years of proceedings. A Final Order in Phase II of this docket was issued on February 4, 2000.

Issues decided by the final Board Order, include:

- < telephone companies must provide access to E 9-1-1 for residential lines that have been disconnected;
- < asymmetric regulation - new entrants, because they lack market share, receive regulatory relief; while incumbent local exchange companies (LECs) remain more closely regulated; new entrants can offer calling areas different from those ordered in the Extended Areas Service (EAS) Docket 5670;
- < there will be no service area restrictions on competitive entry into the territories served by the ten independent (non-Bell Atlantic) telephone companies when such entry is permitted ; and
- < there will be no Phase III of this docket; remaining Phase III issues will be addressed in separate proceedings as appropriate.

Verizon (formerly Bell Atlantic) Demonstrates Local Competition in New York. On December 22, 1999 Verizon received Federal Communications Commission (FCC) approval to enter the long distance market in New York. To gain approval, Verizon needed to satisfy a 14 point checklist specified in the federal 1996 Telecommunications Act demonstrating that it had fully opened up its local network to competition. Federal approval was based partially on a recommendations from the state public utilities commission. Verizon's application was approved by the New York Public Service Commission, but the United States Justice Department (DOJ) disagreed. The FCC overruled DOJ's objections and approved the application, making

Verizon the first regional Bell company allowed to offer long distance service inside its local region. Verizon will likely file for approval to offer interstate toll in Vermont before the end of 2001.

IntraLATA Presubscription. Consumers in Vermont were among the first in the nation permitted to preselect their instate toll company of choice and use that company to make their instate long-distance toll calls - calls requiring the dialing of 1802 before the number - without dialing any additional access code digits or an 800 number prior to dialing the number. Because all companies can now be reached in the same manner, uniform dialing pattern promotes the ability of users to select and use the in-state toll company of their choice. To help consumers compare prices and terms of service among carriers in the initial stages of ILP, the DPS maintained a special toll-free information number and a matrix of rates and companies on its web site. As the number of competitors and offerings increased it became impossible to maintain up-to-date information. At the same time, several privately maintained web sites, notably abelltolls.com and trac.org, now offer extensive, interactive price information on a far more comprehensive and updated basis than would be feasible for DPS. The Department provides links to these sites from its web site.

Wireless. Atlantic Cellular was purchased by Rural Cellular Corporation (RCC) of Alexandria, MN, but continues to serve Vermont as Cellular One. Bell Atlantic Mobile, which has changed its name to Verizon, and US Cellular continue as the other providers of cellular services in the state. These companies are building out and extending their coverage within their respective service territories and upgrading their networks to all digital service.

Sprint and Omnipoint hold federal licenses to use newly authorized portions of this radio spectrum to provide PCS, a digital wireless personal communications services (PCS) in Vermont. PCS is similar to the cellular services that we are familiar with but uses a different bandwidth. In February 2000, the FCC approved a wireless license transfer and Omnipoint was acquired by VoiceStream Wireless Corporation (but continues to provide PCS services under the Omnipoint name).

VTel has also obtained PCS licenses for most of its existing service territory plus Burlington, Rutland and Bennington. AT&T Wireless Services can offer PCS service in Windsor and Windham Counties, the only areas of the state where it holds a license to provide services, as part of its license for the Boston MTA (Major Trading Area). PCS service is not currently available in Vermont.

Wireline. Adelphia Business Solutions (ABS) has recently installed a dedicated 5ESS central office switch in its Vermont network. ABS has contracts from GOVnet, the state government's data network and Vermont Interactive Television, the state's teleconferencing network; both were formerly served by Bell Atlantic.

The voters of the City of Burlington voted in March, 2000, to amend their charter to enter a limited liability partnership to form Burlington Networks, a competitive fiber optic and coaxial cable based telecommunications carrier. It will be a carrier's carrier not offering retail services but leasing capacity and transport through to the customer premise to other carriers. The necessary state legislative approval of the charter change was accomplished in the 19992000 State legislative session. Burlington Networks plans to proceed without delay to build its own facilities based network, featuring broadband coaxial cable drops into customer premises.

Cable. Adelphia has bought several additional Vermont cable franchises, increasing its service territory, and has begun reconstructing its network and providing two-way data services using Internet Protocol (IP) over

its fiber/coax network. In 1999 Helicon cable was purchased by Charter Communications. It is also undergoing an upgrade and is offering a two way IP capable network.

Internet. Access to the Internet is now a local telephone call away for every Vermonter; this was not the case a few years ago. Vermont customers can now obtain Internet service over the telephone line from national providers like AOL, local providers, like SoVerNet, and local and long distance telephone companies like Verizon and AT& T. The independent telephone companies in Vermont all have an affiliate that provides Internet service in Vermont, with the exception of Franklin, Northland and Topsham. As they begin to provide broadband services they will also be providing competition for local and national Internet service providers (ISPs). Two way broadband Internet service is currently available from Adelphia in parts of the greater Burlington area and Montpelier and from Charter Communications in parts of its Barre and St. Johnsbury territories. It is scheduled to be made available throughout Adelphia's territory as its network is upgraded over the next few years, and throughout the smaller Charter Communications territory by 2001. In addition, Charter Communications offers two-way narrowband telephone dialup Internet access throughout the state.

B. Telephone and Cable Regulatory Issues

Verizon Vermont. Verizon Vermont (formerly Bell Atlantic-Vermont) begins operating under an Alternative Regulation Plan. Under the traditional form of regulation, incumbent local exchange providers are entitled to rates that give them an opportunity to recover all of their reasonable and necessary costs plus a reasonable rate of return through the rates that they charge for services. If rates are recovering an amount less than their costs, the company may request that the Board allow an increase in rates. If the provider is recovering more than its costs, the Board can investigate and consider a rate reduction. Traditional regulation does not provide a strong incentive for companies to control their costs or to develop and market the advanced telecommunications services that are so important to economic development

Docket 6167 - Incentive Regulation Plan for Bell Atlantic - Vermont. In November 1998 an investigation, Docket No. 6167, was opened into the merits of an incentive regulation plan for Bell Atlantic-Vermont. In February 1999, Docket 6189, which requested a reduction in intrastate access rates then charged by Bell Atlantic, was consolidated with Docket 6167 as a related matter. Bell Atlantic proposed a Price Points Plan during the course of the proceedings. In response to that plan the Department and other parties contested many aspects of the plan and recommended modifications and changes.

After extensive hearings on the matters, the PSB issued a Final Order on March 24, 2000. The resulting Incentive Regulation Plan, which will be in effect from April 23, 2000 through April 22, 2005, brought about rate reductions to consumers. These rate reductions began in April of 2000. Business customers saw their basic rates dropped from approximately \$41 per month to an effective rate of approximately \$27. toll rates were also reduced. This case brought Bell Atlantic-Vermont's rates into line with its costs and closer in scale to the rates of nearby states. The Order also reduced the cost of wholesale service to Bell Atlantic- Vermont's competitors which stimulates competition. Under the Incentive Regulation Plan, Bell Atlantic-Vermont has flexibility to aggressively compete and incentive to deploy advance telecommunications. Additionally, the Incentive Regulation Plan included a service quality plan where specific service quality standard are enforced through financial incentives to ensure high quality telecommunications service for Vermont consumers.

Finally, the Incentive Regulation Plan included high-speed connections for Vermont high schools within its service territory for a five year period. This network has come to be known as the Interactive Learning Network. The Interactive Learning Network will include a multi-point video teleconferencing bridge to enable high schools to be linked for distance learning and technical assistance at no charge to Vermont ratepayers. In January 2001 the majority of the equipment for the project will have been purchased and the first seven schools will be brought on line. Over the five year period all of the high schools in Bell-Atlantic-Vermont's territory (now known as Verizon) will be connected to the learning network. This network is an substantial new educational opportunity for Vermont's children.

Bell Atlantic Special Contracts. Since the last plan, the Board conducted two investigations into Bell Atlantic's special contract practices. Special contracts relate to the provision of a service to a customer on terms and conditions that are different from the utility's tariff. Special contracts require prior Board approval. In Docket 6066, the Board investigated Bell Atlantic's execution and implementation of special contracts prior to obtaining the required Board approval. The company had conducted an internal investigation of its special contracting practices and brought this matter to the Board's attention. The Department and Bell Atlantic subsequently reached a settlement in that proceeding concerning the penalty the Board should impose for the company's failure to obtain prior Board approval. A final order on that settlement is still pending.

Docket 6066. The Board addressed certain Bell Atlantic toll and Centrex service special contracts. Those contracts, like all utility special contracts, raise two important questions:

- < whether the discounted price offered in the special contract offered by the utility creates a "price squeeze" where the utility provides essential network facilities to itself at more favorable terms than it provides to potential competitors, thereby ensuring that an even more efficient competitor cannot effectively compete; and
- < whether the utility is cross-subsidizing the special contract customer with the rates paid by captive customers who have no competitive alternatives.

If a utility's pricing and practices result in a price squeeze, potential competitors are discouraged from entering the Vermont market. If a utility is cross-subsidizing its special contract customers, then captive customer are paying too much for their services.

The Board conducted two investigations into Bell Atlantic's special contract practices. Special contracts relate to the provision of a service to a customer on terms and conditions that are different from the utility's tariff. Special contracts require prior Board approval. In Docket 6066, the Board investigated Bell Atlantic's execution and implementation of certain special contracts prior to obtaining the required Board approval. (The company had conducted an internal investigation of its special contracting practices and brought this matter to the Board's attention). The Department and Bell Atlantic subsequently reached a settlement in that proceeding concerning the penalty the Board should impose for the company's failure to obtain prior Board approval. A final order on that settlement is still pending.

Docket No. 6077 - Bell Atlantic Special Contract Pricing. In Docket 6077, the Board addressed certain Bell Atlantic toll and Centrex service special contracts. Those contracts, like all utility special contracts, raise two important questions:

- < whether the discounted price offered in the special contract offered by the utility creates a “price squeeze” where the utility provides essential network facilities to itself at more favorable terms than it provides to potential competitors, thereby ensuring that an even more efficient competitor cannot effectively compete; and
- < whether the utility is cross-subsidizing the special contract customer with the rates paid by captive customers who have no competitive alternatives.

If a utility’s pricing and practices result in a price squeeze, potential competitors are discouraged from entering the Vermont market. If a utility is cross-subsidizing its special contract customers, then captive customer are paying too much for their services.

In the past, the Board has articulated a general pricing standard, also known as a price floor or imputation standard, but Docket 6077 represents the first time the Board has examined that standard in the context of specific Bell Atlantic special contracts. Since competitive entry generally occurs in the market segment to which special contracts are targeted, the Docket 6077 investigation will have consequences for the future of competition in the telecommunications industry in Vermont.

The Board issued its final order in Docket 6077 in February 2000. Applying the price floor standard the Board adopted previously, it concluded that Bell Atlantic did not price the toll and Centrex special contracts at issue in the case correctly. It required the company to revise its price floor analyses to determine whether the prices the company set in the special contracts were anti-competitive. The Board also prohibited Bell Atlantic from offering special discounts on toll service to large business customers based solely on the customer’s usage; instead the Board ordered Bell Atlantic to offer by way of its tariff volume discounts for toll usage for all large business customers. The company appealed the Board’s decision to the Vermont Supreme Court. A decision on the appeal is not expected for several months.

Docket 6318 - Deaveraging of Wholesale Prices of Unbundled Network Elements. On December 9, 1999, the Public Service Board initiated Docket 6318 pursuant to the FCC’s Local Competition Order in FCC Docket 96-325 to deaverage the wholesale prices of unbundled network elements charged by Verizon Vermont (formerly Bell Atlantic-Vermont) to competitive carriers wishing to enter the local exchange market. Prices were to be established in at least three different geographic zones to reflect the cost of providing service within each zone. The Board, in an Order dated October 12, 2000, adopted Verizon’s proposal to create three zones; a rural zone, a suburban zone and an urban zone, based on the density of access lines within individual geographic wire center boundaries. On December 11, 2000, Verizon Vermont filed a compliance tariff reflecting the assignment of individual wire centers into their respective zones and detailing the wholesale prices for interconnection and leasing of unbundled network elements within each zone.

Docket No. 6255 - Wholesale Service Quality Standards. To ensure that Verizon provides adequate service to competitive local exchange carriers (CLECs) who use the company’s network to provide retail service, the Board opened Docket No. 6255. So far, no litigation has taken place because the parties to the docket have been working toward a negotiated set of wholesale service quality standards with associated remedies and penalties for failing to meet the standards. No litigation schedule has been set in the docket and therefore it is unclear when a final Board order will be issued in the case.

Docket No. 5900 - Bell Atlantic/NYNEX Merger; Compliance with Order. As a condition of the Board’s approval of NYNEX’s merger with Bell Atlantic, the company was required to show that it satisfied a

number of competitive conditions by a date certain. The Board held a proceeding to determine the company's compliance and found that it satisfied the order if the company made two changes to its existing offerings. First, the Board required the company to offer its voice messaging service for resale to competitors. Second, the Board ordered the company to make available to its wholesale customers unseparated combinations of unbundled network elements that the company provides to itself anywhere in the company's network. Bell Atlantic (now Verizon) appealed that decision to the Vermont Supreme Court. The appeal is pending.

Adelphia Cable Communications. Dockets 6117 - 6119 were investigations into Adelphia's rates for basic service and associated equipment and installation effective Aug. 1, 1998, in addition to the company's \$5.00 fee for late payment. Since the final order in that case which adjusted certain rates and prohibited the \$5.00 late fee, Adelphia was relieved from rate regulation in the areas subject to the FCC's order.

Dockets 5847 and 5886 involve investigations into whether the company complied with its CPGs in the Small Cities and First Carolina acquisition dockets. The company and DPS reached a settlement outlining over 20 violations. The Board approved the settlement on April 5, 1999. DPS subsequently filed a motion for a Show Cause Hearing to Enforce the Stipulation and petitioned the Board to impose penalties as a result of none violations of the settlement. The Board opened a docket on the DPS's Motion to Show Cause (Docket 6223) in May 1999, which it later consolidated with Docket 6101. Evidentiary hearings were held in October and November, 1999. A final Board order in this proceeding was issued on April 28, 2000.

Docket Nos. 6101/6223 - CPG Renewal for Adelphia's Cable Systems. The PSB opened Docket 6101 to evaluate Adelphia Cable Communications' proposal for renewal of its CPGs in most of its franchise area which expired in 1999. The Department's investigation led it to conclude that the company failed to meet several state and federal criteria for renewal of the CPGs at issue. Nevertheless, the Department recommended that the Board grant the company renewed CPGs, with stringent conditions, due to the benefits of continuity of service and Adelphia's significant on-going capital investment to upgrade its systems.

On July 13, 1999, the Board consolidated Docket 6101 with Docket 6223. Docket 6223 was opened after the DPS petitioned the Board to sanction Adelphia for violating a Settlement and Order in a prior compliance proceeding (Docket Nos. 5847/5886) which was intended to resolve the company's longstanding regulatory non-compliance problems.

In the compliance portion of the consolidated proceeding, the company defended its actions, claiming in part that the Department's allegations were meritless and the company's conduct did not rise to a level warranting sanctions. The Board found that the record in the proceeding was "factually inconsistent with Adelphia's claim that it is being punished for isolated trivial transgressions," and that the evidence was "compelling that the Company's violations are material in substance, in scope, and in duration over time." The Board did not agree with the magnitude of penalties the Department sought, but confirmed the Department's view that Adelphia's behavior showed a persistent pattern of disregard for its legal obligations in Vermont. The Board imposed a fine of \$567,500 for the company's proven noncompliance with regulatory requirements.

The Board also granted the company renewed CPGs, although the Board found that the company's pattern of noncompliance and "willful obstruction of the Board and the Department in the performance of their statutory responsibilities" justified revocation of the company's franchise under 30 V.S.A. § 509. Consequently, the Board imposed many conditions on the company's renewed CPGs. Among the obligations Adelphia must satisfy are posting a \$1 million performance bond to ensure the company abides by its promises and its CPG conditions, rebuilding or upgrading of all of its Vermont systems regardless of system size, with the exception of Newport, to 750 MHz by the end of 2003, and providing a cable modem and

internet access to all schools and libraries in the company's service territory which are passed by Adelphia's cable facilities.

FCC - Adelphia Effective Competition. Local franchising authorities for cable television like the Public Service Board are authorized under federal law to regulate rates for basic service, equipment, and installation only in areas where the cable operator is not subject to effective competition as defined by federal law. In 1999, Adelphia obtained a favorable ruling from the Federal Communications Commission on a petition to revoke the Board's jurisdiction over the company's cable rates in most of its service areas. In November, 2000, the company filed another petition with the FCC seeking to revoke the Board's jurisdiction in its remaining service areas with the exception of the Lake Champlain Cable Television system. The Department did not oppose the November request, and a ruling from the FCC on that request is expected in early 2001.

Other Developments.

Docket 6331 - Investigation into MCI/Worldcom Business Practices. On December 15, 1999, the DPS filed a Petition with the Public Service Board seeking an investigation into a variety of business practices engaged in by MCI WorldCom, Inc. (now known as WorldCom, Inc.) that the Department believed violated established consumer protection standards for Vermont telecommunications consumers. Following extensive negotiations, the Department and WorldCom are nearing execution of a stipulation which resolves the issues raised by the Department's Petition. Additionally, WorldCom and the Department have agreed to collaborate on a future Docket in an attempt to develop industry wide best practices in the marketing and disclosure of information necessary for Vermont consumers to make informed telecommunications decisions.

Telecommunications Tax. The 1997 Vermont Legislature passed a 4.36 percent tax on telecommunications usage. The tax was part of the Act 60 legislation for funding education. The tax has been criticized as counterproductive because it raises the business expense for telecommunications in a state which will need to rely on electronic commerce.

Local Calling Areas - Extended Area Service, Phase Two. DPS, the PSB and Vermont's local telephone companies have concluded a two-phase process of expanding local calling areas. DPS asked the Board to investigate local calling areas (Docket 5670) for three reasons:

- < in many parts of the state, toll calls were required to call neighbors;
- < in many parts of the state, residents had to make toll calls to their major commercial and government centers, including schools; and
- < there were large inequities among different parts of the state with respect to local calling areas.

In February 1996, the first expansion went into effect, ensuring that consumers in all telephone exchanges in Vermont could make local calls to any exchange within three miles of any part of their home exchanges. (Telephone exchanges often include all or parts of several towns or cities.) This established a minimum size local calling area for all Vermonters and ensured that neighbors could call one another by local calls.

The second local calling area expansion went into effect in September 1997. All Vermont telephone subscribers can now reach their communities of interest, including important regional commercial and governmental centers, schools and medical services, by a local call. Also, at least one ISP is within the local calling area of every Vermonter.

C. Universal Service Fund

In Docket 5918 the Board ruled that all 11 Vermont LECs are eligible telecommunications carriers and would be deemed eligible for receiving federal universal service fund dollars. Competitive carriers may also apply to be eligible for federal universal service payment when providing local service in Vermont. To date no competitors have applied.

State and federal policy changes substantially affected the programs funded through Vermont's Universal Service Fund. In May 1997, the FCC issued its Report and Order In the Matter of the Federal State Joint Board on Universal Service, FCC Docket 97157, mandating significant changes in the Lifeline low income telephone discount programs of the states effective Jan. 1, 1998. In part as a result of the federal changes, the 1998 Vermont General Assembly enacted changes in Vermont universal service fund (USF)-funded Lifeline and Vermont Telecommunications Relay Service programs. The same FCC Order also addressed support for rural, insular and high cost areas, as well as the program to fund advanced telecommunications services in schools, libraries and rural health care, benefitting many of the schools in Vermont that applied for these ERate funding supports.

Appeal of FCC Universal Service Fund Rates. The Telecommunications Act of 1996 established the principle that consumers in all regions of the country, including those in rural and high cost areas, should have access to telecommunications and information services that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas. This principle is relevant to Vermont, one of the most rural states and which has among the highest statewide average telecommunications costs in the U.S.

On May 8, 1997, the FCC issued rules that were supposed to give effect to the 1996 Act's universal service provisions. In the view of both the Department and the Board, the FCC's universal service rules would not promote the Act's universal service principles. DPS therefore filed an appeal to the FCC Order. At the same time, the Board requested the FCC to reconsider its Order. On October 21, 1999, the FCC adopted a new universal support mechanism for the largest local telephone companies that will help Vermont customers in high cost and rural areas to receive local service at affordable and reasonably comparable rates. The DPS appeal is now pending before the 10th U.S. Circuit Appellate Court

Lifeline. The telephone Lifeline program has, since 1985, provided a support to low-income Vermont residents toward their basic local telephone service. Prior to the 1998 legislative changes, the amount of support was 50% of basic service charges or \$5.50, whichever was greater. Because of Vermont's participation in Lifeline, eligible consumers also received an additional \$3.50 off their bill in the form of a federal waiver of the subscriber line charge. Consumers were eligible if they were receiving certain public benefits from the Department of Social Welfare or were 65 or older with modified adjusted gross income less than 175% of the federal poverty standard.

In 1997, the FCC offered new federal funding for the program by providing, in addition to the existing subscriber line charge waiver, by providing a \$1.75 contribution plus a match of \$.50 for each dollar of state funding up to an additional \$1.75 of federal funding. The total possible federal share, including the new funding and the waiver, is now \$7.00.

In addition to the increase in funding, the FCC ordered that Lifeline participants no longer be disconnected from local service for nonpayment of toll charges, and that a Lifeline participant may not be required to pay a deposit to initiate service if he or she accepts toll blocking.¹²

As a result of the increased federal funding, the cost to Vermont of supporting 50% of Lifeline eligible consumers' bills dropped roughly in half. The legislature considered the decreased costs to the state, along with the relatively low participation rate in the program, in making two changes to Lifeline. Act 135 of the 1998 Vermont General Assembly increased the minimum support level from \$5.50 to \$7.00. With this floor under the Lifeline support level, the state maximizes the available federal funds.

The second change created a new means of enrolling in the program for persons under 65. Previously this group had to be receiving public benefits (Aid to Needy Families with Children, Food Stamps, Emergency Fuel Assistance or Medicaid) in order to receive Lifeline. The legislative change enabled those under 65 to enroll through the Tax Department in the same way seniors may enroll. Income eligibility was set at 150% of the federal poverty standards to approximate the highest level of income at which a person is eligible for Department of Social Welfare (DSW) programs.

Although the increased support level went into effect July 1, 1998, the new enrollment mechanism had no practical impact until income tax forms were distributed in January 1999.

Vermont Telecommunications Relay Service. Act 135 of the 1998 Vermont General Assembly added a new component to the Vermont Telecommunications Relay Service. The new program will provide grants for the purchase of adaptive telecommunications equipment to enable low income deaf, deaf-blind, hard-of-hearing, and speech-impaired Vermont residents to connect to the telephone network. The program will be administered through a contract with a private vendor. Program guidelines were developed by the DPS and approved by the PSB as required by the statute. The program was implemented in April, 1999.

Schools and Libraries. As part of the Telecommunications Act of 1996, the FCC initiated rules to increase collections for the federal Universal Service Fund for the purpose of providing discounts (known as the ERate) on telecommunication services and equipment to qualifying schools, libraries and health care facilities. As the administrator of the K12net portion of GOVnet, the state chief information officer organized a joint request for funds on behalf of many Vermont schools.

¹²These changes were subsequently overturned by a Federal court order concerning the FCC Universal Service May 8, 1997, order as a whole. By the time the Federal court ruled, however, the Vermont Public Service Board had extended the prohibition against disconnection of local service for non-payment of toll to all Vermont consumers.

D. Consumer Protection and Quality of Service

Docket 5903 Protecting Consumers and Fostering Competition. With the advent of competition in the local telecommunications market, the PSB opened Docket 5903 in 1996 to determine whether additional service quality standards and consumer and privacy protections are necessary to ensure high quality telecommunications services in Vermont. In that proceeding, the DPS advocated for standards and protections that the DPS had recommended in the 1996 *Telecommunications Plan*, framing many of them in a Consumer Bill of Rights. In addition, the DPS strongly advocated for promoting universal service by denying local exchange carriers (which are providing billing and collection services for interexchange long-distance carriers) the right to disconnect customers' basic service for failure to pay the non-basic service charges. The Board adopted this DPS position on disconnection in its Final Order in Docket 5903 on July 2, 1999.

Among the most significant requirements of the order are: clear notice at the time of service order; written confirmation of service orders; 30 days notice of changes in rates, terms and conditions; fair marketing practices; reasonably detailed billing, including the name and telephone number of each service provider including charges on the bill; courteous, competent and timely customer service; prompt correction of directory assistance errors; and discounts for persons with disabilities. The order also requires companies to comply to specific complaint response time frames, both for DPS complaints and for direct consumer complaints. Provisions concerning privacy require: notice to consumers, through inclusion in telephone directories, of how to reduce telemarketing calls; annual notices regarding 800 information disclosure; access to call blocking features; and notices when companies propose new services that have privacy implications. The order also ordered a prohibition on the disconnection of local telephone service for non-payment of toll charges. In rendering this decision, the Board concluded, the existing policy [prior to the order], allowing LECs to disconnect local service for non-payment of toll, placed the LECs in the role of a collection agent for the inter-exchange carriers. In a competitive environment, the Board has concluded that such a role is no longer appropriate each carrier should retain responsibility for collecting amounts owed it, without being able to use the existence of another service as leverage to encourage payment.¹³ Lastly, the order adopted quality of service standards that apply nine performance measures, as applicable, to all companies except wireless. Carriers are required to report their service quality performance quarterly.

Telemarketing Abatement. The right of consumers to opt not to receive telemarketing calls arose as an issue in the 1998 legislative session. Filed bills sought either to strengthen existing legal protections or to establish a Vermont-specific system. Although no legislation was passed, DPS and a coalition of state agencies, telephone companies and business groups developed a public awareness campaign to inform consumers of their rights and to increase business compliance with existing ways consumers can opt out of telemarketing calls at home. The campaign led to more than 15 percent of Vermont households signing up with the Telephone Preference Service, a national "do-not-call" registry operated by the Direct Marketing Association.

Slamming and Cramming. In 1997 there were approximately 75 companies with certificates of public good to do business in Vermont as resellers. By the end of 1999, more than 300 companies were certified. This increased competition produced a wide variety of choices for consumers and a reduction in toll prices. Along with the increased consumer options, however, a number of companies also took advantage of the market complexity to abuse the public in various ways. Vermont, like other states, has experienced an explosion of "slamming" and "cramming" complaints.

¹³Final order, Vermont Public Service Board Docket 5903, 7/2/99, at 96.

"Slamming" refers to the unauthorized switching of a consumer's chosen or "presubscribed" long distance carrier. For the consumer, the result is usually an increase in rates and degradation of service, as well as the frustrating and time consuming process of switching back to one's preferred carrier. For the slammed carrier, the practice costs revenue and goodwill. From July 1, 1996 through June 30, 1998, the number of slamming complaints registered with DPS increased from six to 364. The following year, in part in response to federal and state regulatory action, the number dropped to 114. A small number of companies are responsible for a large number of complaints.

While slamming is regulated by the FCC, in 1995 the Vermont General Assembly passed legislation prohibiting slamming and directing the PSB to adopt rules implementing the act. An emergency rule was adopted in 1996 and finalized in 1997. The rule delineates strict procedures for marketing and verification of changes in presubscribed carrier. Violations are punishable by fines of up to \$100,000 (the general fining authority provided to the PSB under statute). The legislature further strengthened the slamming statute in 1998, expanding the penalties that may be assessed by the PSB. The Department and the Board will also soon take the responsibility for enforcing federal slamming rules in cooperation with the FCC.

DPS successfully negotiated resolutions of the majority of complaints received, including compensation to the consumer as provided in the rule. In some cases involving a pattern of multiple complaints, DPS has obtained voluntary agreements by companies to suspend telemarketing in the state. As a result of these informal resolutions, only one case had to be prosecuted before the PSB. A petition alleging slamming was filed by DPS against Business Discount Plan in February 1998, resulting in approval of a settlement that provided a \$25,000 payment by the company to fund a public awareness campaign on slamming and related issues, as well as payments of \$50 to each consumer who had complained of being slammed.

"Cramming" refers to the practice of billing consumers for unauthorized, non-telecommunications services on their telephone bills. In recent years, local exchange companies have contracted with billing aggregators and service providers to bill for a wide variety of services, such as entertainment hotline subscriptions, paging and web sites. Because of the complexity of their telephone bills, consumers often pay the unauthorized charges for months before discovering the mistake. When they attempt to dispute the charges, they often encounter long waits on hold, toll-free numbers that don't work and finger-pointing by the billing company to a service provider who can't be reached by telephone. Because the billing aggregators and non-telecommunications service providers are not regulated by the PSB, the practice, which resulted in 58 consumer complaints to DPS during 1998 and 21 during 1999, is difficult to stop. Verizon, which places charges on consumers' bills on behalf of the service provider or billing aggregator, implemented procedures in early 1998 to assist customers and crack down on the repeat offenders. Although the rate of complaints has decreased since Verizon implemented the new procedures, DPS continues to receive calls from consumers who have been victimized. In response to the problem, the 2000 General Assembly passed legislation that requires registration of billing aggregators, and provides for fines in the event of a pattern of unauthorized charges on consumers' bills. The enforcement provisions of the legislation did not become effective until October 1, 2000, so it is too soon to gauge the effectiveness of the new law.

E. Other New Developments

Mergers and Acquisitions. The most notable mergers and acquisitions over the last two years are the following:

- < The Bell Atlantic/GTE merger completed the merger approval process at the state level on March 2, 2000. All 27 state commissions that conducted proceedings on the merger approved it, including Vermont; 23 states declined to assert jurisdiction. The FCC gave its final approval to the merged company, now known as Verizon, on June 16, 2000. Bell Atlantic Vermont has changed its name to Verizon Vermont. Bell Atlantic Mobile has also changed its name to Verizon Wireless.
- < Waitsfield-Fayston Telephone Company merged with Champlain Valley Telecom creating Waitsfield Champlain Valley Telecom.
- < MCI merged with WorldCom, first becoming MCI WorldCom, then just WorldCom. WorldCom and Sprint proposed a merger, but called it off when the U.S. Department of Justice filed suit to block the combination based on concerns over undue concentration in the consumer long distance market.
- < Atlantic Cellular was purchased by RCC Atlantic, Inc.
- < Adelphia has acquired several Vermont cable companies. In PSB Docket 5886, completed in November 1996, Small Cities Cable Television, L.P. and Small Cities of Newport, Inc. were acquired by Mountain Cable, which is owned by Adelphia Cable. In PSB Docket 6003, completed December 1997, Time Warner of Vermont, L.P. and Warner Cable Communications, Inc. were acquired by MultiChannel TV Cable Company, also owned outright by Adelphia Cable. In 1999, Adelphia acquired FrontierVision Partners, L. P., Harron Communications Corporation, and Century Communications Corporation.
- < Charter Communications, based in St. Louis, acquired Helicon Cable Communications.

Public Telephones. The Board opened Docket 6012, an Investigation into the Transition from Regulation to Competition for Public Telephone Service in Vermont, in response to the Telecommunication Act of 1996's deregulation of public telephone services. The investigation had two main components.

First, the Board examined whether a program for "public interest payphones" was necessary to ensure access to public telephone services throughout the state. Under federal regulations, "public interest payphones" are payphones that:

- < fulfill a public policy objective in health, safety or public welfare;
- < are not provided with an existing contract for a payphone; and
- < would not otherwise exist as a result of the operation of the competitive marketplace.

On September 22, 1998, the Board determined that there was insufficient information on public need to justify the establishment of a public interest payphone program. This Order requires payphone providers to furnish certain market data over the next two years so that the Board and DPS can ascertain whether the market will provide payphones in locations necessary for the public health, safety and welfare.

Secondly, the investigation examined what, if any, consumer protection regulations are necessary for public telephone service. This component of the investigation was settled in part and litigated in part. The Board issued a final order in this proceeding on December 28, 1999. The order requires payphone providers to, among other things, furnish a telephone directory at each payphone on an annual basis unless directory assistance is provided for no charge, allow incoming calls absent a waiver from the Board, and post the payphone's location or address on the instrument.

E 9-1-1. Vermont's Enhanced 9-1-1 (E 9-1-1) system was activated in November 1998. Established by the 1994 Vermont General Assembly, E 9-1-1 uses modern telecommunications and computer technologies to provide an improved capability for operators handling calls and improves emergency response time and dispatch of emergency service personnel. Operators use computers that display telephone and address information of the calling party even before they hear the caller's voice. This is the first digital ISDN E 9-1-1 network in the country.

Vermont Telecommunications Applications Center. The Vermont Telecommunications Applications Center (VTAC) was created in accordance with a recommendation in the 1996 Vermont Telecommunications Plan to "both be a partner and promote the establishment of public/private partnerships . . . for accelerating the pace of progress in bringing new capabilities to Vermonters."

The DPS, PSB, and Vermont Business Roundtable worked together to organize VTAC as a nonprofit corporation and public private partnership to accelerate the introduction of new applications by Vermont's public and private sector users. VTAC began operation in January 1998, and Champlain College serves as the host institution. For more information, see the VTAC Web site at <http://www.vtac.org>.

Vermont Interactive Learning Network. As part of the PSB's decision in docket 6167, Verizon-Vermont agreed to a five-year program to provide facilities, personnel, expertise and funds to create a two-way, interactive distance learning network linking all of the high schools in its service territory. This network, which is under development will allow students in smaller, more rural schools to participate in classes and other educational opportunities taking place in other places. For example, two students in Enosburg Falls could participate in a high-level math class being taught in St. Johnsbury, interacting with the instructor in real time, over an interactive video hookup. It could also allow specialized language classes, sports seminars, and teacher or administrator training sessions. It is also hoped that the project will be able to generate its own funding through grants and other assistance and remain viable after the five-year term expires.

Telephone Number Conservation. On March 17, 2000, the FCC adopted new policies and rules to reduce the need for new area codes. The Order, in Docket CC 99200 established a plan for a national, mandatory, phased rollout of thousand-block pooling by carriers with local number portability. Vermont is participating in this effort to conserve numbers in the 802 area code and extend its life as long as possible.

Figure 3.1 Incumbent Local Exchange Carrier Territories

Incumbent Local Exchange Carrier Territories

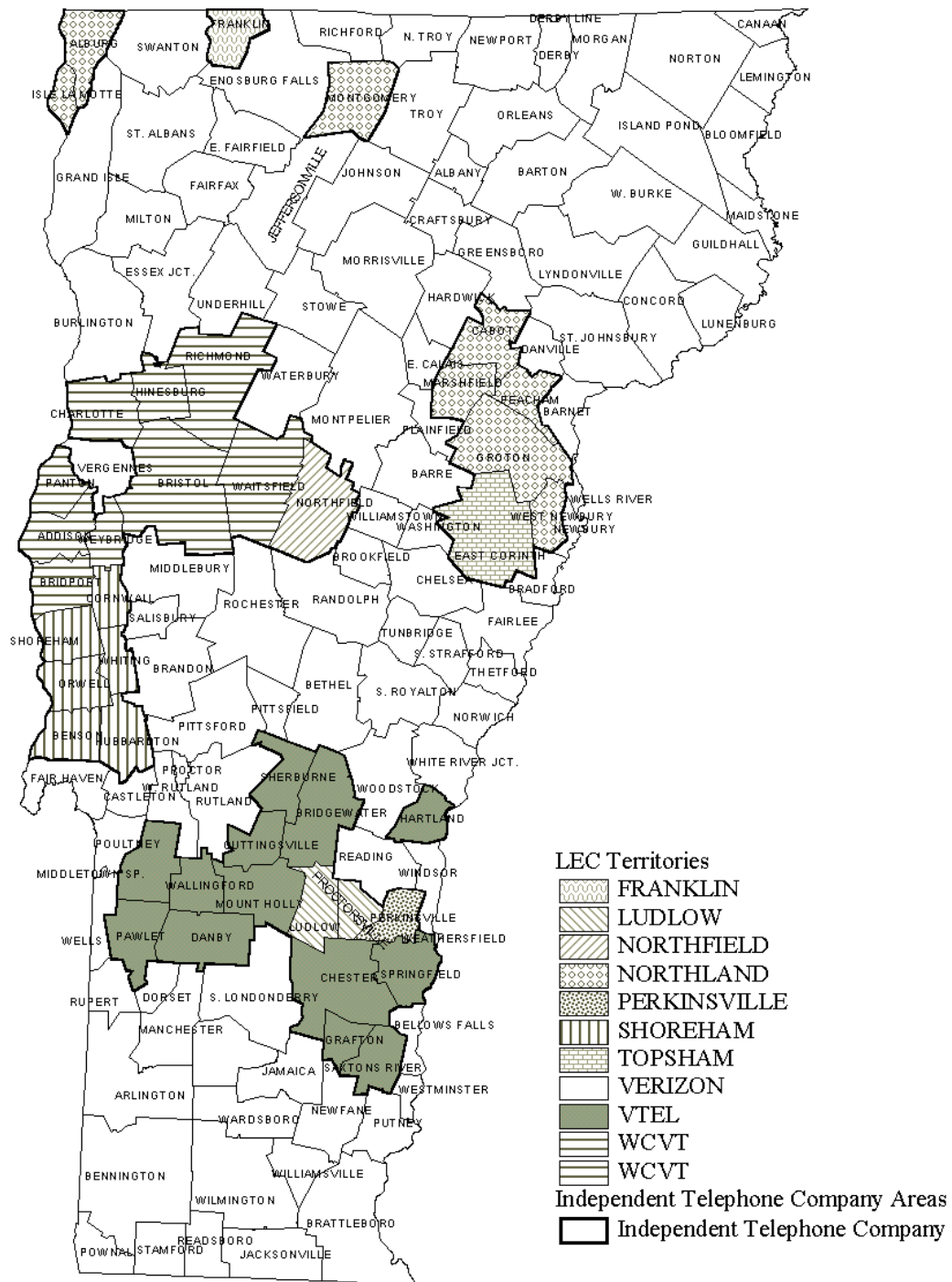


Table 3.1 Vermont Telephone Companies: Access Lines in Use

1999

---- Access Lines in Use ----

	Business	Public	Residential	Special Access Lines (non-switched)*	Total
Bell Atlantic**	104,566	3,398	239,232	30,497	377,693
Franklin Telephone	43	3	729	2	777
Ludlow Telephone	1,561	0	4,030	0	5,591
Northfield Telephone	1,465	0	2,446	0	3,911
Northland Telephone	811	0	5,221	0	6,032
Perkinsville Telephone	118	0	834	0	952
Shoreham Telephone	313	0	3,179	0	3,492
Topsham Telephone	99	0	1,363	0	1,462
Vermont Telephone	4,357	149	16,571	250	21,327
Waitsfield/Fayston***	3,321	124	17,103	256	20,804
Total	116,654	3,674	290,708	31,005	442,041

1998

---- Access Lines in Use ----

	Business	Public	Residential	Special Access Lines (non-switched)*	Total
Champlain Valley Telephone	1,968	80	12,738	144	14,930
Franklin Telephone	46	2	721	3	772
Ludlow Telephone	1,376	48	3,948	2	5,374
Northfield Telephone	1,484	30	2,378	0	3,892
Northland Telephone	624	0	5,013	44	5,681
NYNEX	100,995	3,531	232,084	37,722	374,332
Perkinsville Telephone	119	4	807	2	932
Shoreham Telephone	179	23	3,089	0	3,291
Topsham Telephone	110	0	1,324	0	1,434
Vermont Telephone	4,286	127	16,189	237	20,839
Waitsfield/Fayston	1,286	51	3,962	59	5,358
Total	112,473	3,896	282,253	38,213	436,835

Note:

"Public" includes Semi-Public Pay telephones.

"Public" formerly included, company stations, extension & PBX stations, which are now tabulated under "Business."

* Special Access Lines are dedicated lines from a customer to a long distance company provided by a local phone company.

** Previously NYNEX

***Waitsfield and Champlain Telephone Company merged in 1999

Source: Annual Reports

**Table 3. 2 Vermont Telephone Companies:
Condensed Balance Sheets, 1998 - 1999**

1999

Telephone Company	Plant in Service & Construction	Less Depreciation Reserve	Net Plant
Bell Atlantic**	\$909,664,000	\$534,860,000	\$374,804,000
Franklin Telephone	\$1,307,798	\$739,087	\$568,711
Ludlow Telephone	\$11,607,720	\$6,233,856	\$5,373,864
Northfield Telephone	\$10,517,291	\$5,572,663	\$4,944,628
Northland Telephone	\$18,457,472	\$11,933,155	\$6,524,317
Perkinsville Telephone	\$3,201,740	\$1,772,508	\$1,429,232
Shoreham Telephone	\$8,896,072	\$5,139,783	\$3,756,289
Topsham Telephone	\$3,503,414	\$2,272,457	\$1,230,957
Vermont Telephone	\$45,763,482	\$32,454,844	\$13,308,638
Waitsfield/Fayston	\$50,284,059	\$27,865,333	\$22,418,726
Total	\$1,063,203,048	\$628,843,686	\$434,359,362

1998

Telephone Company	Plant in Service	Less Depreciation Reserve	Net Plant
Champlain Valley Tel.*	\$36,742,155	\$21,350,172	\$15,391,983
Franklin Telephone	\$1,244,929	\$678,198	\$566,731
Ludlow Telephone	\$11,161,201	\$5,626,310	\$5,534,891
Northfield Telephone	\$10,146,538	\$5,210,758	\$4,935,780
Northland Telephone	\$17,872,272	\$10,977,483	\$6,894,789
NYNEX	\$861,223,000	\$492,883,000	\$368,340,000
Perkinsville Telephone	\$2,973,432	\$1,568,083	\$1,405,349
Shoreham Telephone	\$8,423,910	\$4,756,627	\$3,667,283
Topsham Telephone	\$3,174,018	\$2,178,541	\$995,477
Vermont Telephone	\$45,815,577	\$32,099,380	\$13,716,197
Waitsfield/Fayston	\$12,309,251	\$5,008,336	\$7,300,915
Total	\$1,011,086,283	\$582,336,887	\$428,749,396

* Champlain Valley Tel merged with Waitsfield in 1999

** Previously NYNEX

Source: Annual Reports

Table 3.3 Vermont Telephone Companies: Condensed Operating Statements, 1998 - 1999

1999

Telephone Co.	Gross Operating Revenue	Local Service	Toll & Network Access Service Intrastate	Network Access Services Interstate	Other Misc. Revenue	Depreciation, Maint. & Operating Exp.	Taxes, Including Income	Net Operating Income	Other Income	Other Deductions from Income	Net Income
Bell Atlantic**	\$257,264,000	\$132,423,000	\$41,052,231	\$72,530,769	\$11,258,000	\$173,654,000	\$35,415,000	\$48,195,000	(\$3,960,000)	\$9,299,000	\$34,936,000
Franklin	\$490,769	\$139,423	\$107,303	\$240,278	\$3,793	\$313,088	\$69,457	\$108,224	\$35,719	\$24,430	\$119,513
Ludlow	\$2,882,275	\$1,195,816	\$460,426	\$1,038,343	\$187,690	\$2,416,413	\$237,083	\$228,780	\$2,291	\$62,633	\$168,437
Northfield	\$2,699,392	\$1,219,856	\$293,238	\$1,044,802	\$99,637	\$2,176,770	\$246,076	\$276,546	\$4,969	\$8,829	\$272,686
Northland	\$6,347,674	\$2,483,813	\$766,835	\$3,015,233	\$81,793	\$4,531,709	\$187,531	\$1,628,434	(\$78,207)	\$613,040	\$937,187
Perkinsville	\$666,171	\$239,329	\$74,991	\$312,002	\$39,849	\$492,967	\$84,775	\$88,429	(\$17,898.82)	\$1,402	\$104,926
Shoreham	\$3,018,371	\$1,238,156	\$416,245	\$1,237,193	\$126,777	\$1,699,388	\$100,283	\$1,218,700	\$118,944	\$448,862	\$888,782
Topsham	\$929,667	\$354,291	\$137,014	\$413,217	\$25,145	\$745,461	\$62,046	\$72,736	\$47,271	\$29,057	\$90,950
Vermont Tel.	\$17,422,649	\$6,369,737	\$3,220,794	\$7,106,302	\$725,819	\$12,595,661	\$1,176,301	\$3,650,687	\$0	\$2,535,726	\$1,114,961
Waitsfield/Fayston	\$19,311,095	\$7,620,651	\$3,564,998	\$7,366,058	\$759,388	\$14,421,138	\$1,279,076	\$3,610,881	(\$24,277)	\$2,132,701	\$1,502,457
Total	\$311,032,063	\$153,284,072	\$50,094,075	\$94,304,197	\$13,307,892	\$213,046,594	\$38,857,628	\$59,078,416	(\$3,871,189)	\$15,155,681	\$40,135,898

1998

Telephone Co.	Gross Operating Revenue	Local Service	Toll & Network Access Service Intrastate	Network Access Services Interstate	Other Misc. Revenue	Depreciation, Maint. & Operating Exp.	Taxes, Including Income	Net Operating Income	Other Income	Other Deductions from Income	Net Income
Champlain Valley	\$14,238,308	\$5,549,154	\$2,843,794	\$5,333,759	\$511,601	\$9,771,134	\$1,276,053	\$3,191,121	(\$353,452)	\$1,600,743	\$1,236,926
Franklin	\$481,872	\$133,400	\$87,013	\$226,948	\$9,463	\$346,754	\$53,225	\$81,893	\$28,009	\$24,379	\$85,523
Ludlow	\$2,880,335	\$1,103,338	\$402,991	\$1,166,183	\$208,672	\$2,452,044	\$211,538	\$216,753	(\$8,723)	\$30,946	\$194,530
Northfield	\$2,795,103	\$1,219,856	\$331,963	\$1,103,390	\$139,894	\$2,129,904	\$341,901	\$323,297	(\$10,284)	\$135,402	\$198,179
Northland	\$5,715,339	\$2,326,949	\$651,345	\$2,658,337	\$78,708	\$4,420,411	\$205,088	\$1,089,840	(\$561,657)	\$210,946	\$317,237
NYNEX	\$268,009,162	\$132,020,000	\$44,259,000	\$75,000,953	\$16,729,209	\$177,747,000	\$37,323,000	\$52,939,162	(\$6,375,000)	\$8,810,000	\$37,754,162
Perkinsville	\$609,871	\$210,418	\$66,600	\$286,486	\$46,166	\$459,631	\$72,520	\$77,720	(\$11,108)	\$2,449	\$86,379
Shoreham	\$2,856,843	\$1,215,936	\$406,295	\$1,102,377	\$132,235	\$1,668,863	\$102,855	\$1,085,125	\$144,925	\$162,547	\$1,067,503
Topsham	\$981,105	\$334,757	\$171,918	\$428,246	\$46,184	\$723,982	\$72,736	\$184,387	\$11,472	\$29,996	\$165,863
Vermont Tel.	\$16,271,284	\$4,938,883	\$3,081,372	\$7,353,603	\$897,426	\$10,885,706	\$1,265,335	\$4,120,243	\$619,313	\$2,409,921	\$1,091,009
Waitsfield/Fayston	\$5,077,982	\$1,677,657	\$689,863	\$2,091,440	\$619,022	\$4,075,218	\$422,017	\$580,747	\$94,145	\$276,172	\$398,720
Total	\$319,917,204	\$150,730,349	\$52,992,154	\$96,751,722	\$19,418,579	\$214,680,647	\$41,346,268	\$63,890,289	(\$6,422,360)	\$13,693,501	\$42,596,031

Previously NYNEX**
Source: Annual Reports

Table 3.4 Vermont Cable TV Companies, Year End 1999

Company	Subscribers	- - Stations - -	Basic Rate Monthly	
Adelphia				
Better TV of Bennington	7,195	41	41	\$6.40
First Carolina				
Fair Haven	2,152	27	27	\$11.00
Grafton	366	22	22	\$14.68
Manchester	4,846	28	28	\$11.25
Pittsford	726	52	52	\$11.75
Weston	498	28	60	\$11.75
West Pawlet	147	12	35	\$18.16
FrontierVision				
Hardwick	546	27	27	\$11.31
Hartford	4,031	63	63	\$9.68
Morrisville	1,419	27	27	\$11.55
St. Albans	5,130	41	80	\$11.16
Harron Communications				
Wells	207	70	77	\$10.58
Lake Champlain				
Milton	7,593	54	60	\$10.70
Mountain Cable Co.				
Bristol	1,289	47	60	\$11.25
Montpelier/Waterbury	7,344	55	75	\$11.10
Newport	3,939	64	67	\$6.87
Rochester	164	19	42	\$10.10
Rutland	10,994	52	52	\$8.44
Shelburne	3,609	46	41	\$11.25
Williston/Middlebury	28,754	63	80	\$10.30
Multi-Channel				
Brattleboro	4,236	59	60	\$32.35
Bellows Falls	1,237	59	60	\$32.35
Guilford	184	59	60	\$32.35
Vernon	379	59	60	\$32.35
Westminister	286	59	60	\$32.35
Richmond Cable TV				
Richmond	2,383	44	60	\$10.70
Youngs Cable TV Corp.				
Ascutney	9,015	41	60	\$9.75
Reading	44	12	40	\$17.66
Adelphia Total	108,713			
Duncan Cable TV	1,069	39	40	\$24.30
E. Dummerston Cable	235	16	16	\$8.00
Gateway Cablevision				
Jacksonville	56	11	60	\$10.83
West Dover	1,817	42	45	\$26.95
Whitingham	14	7	60	\$26.95
Gateway Total	1,887			

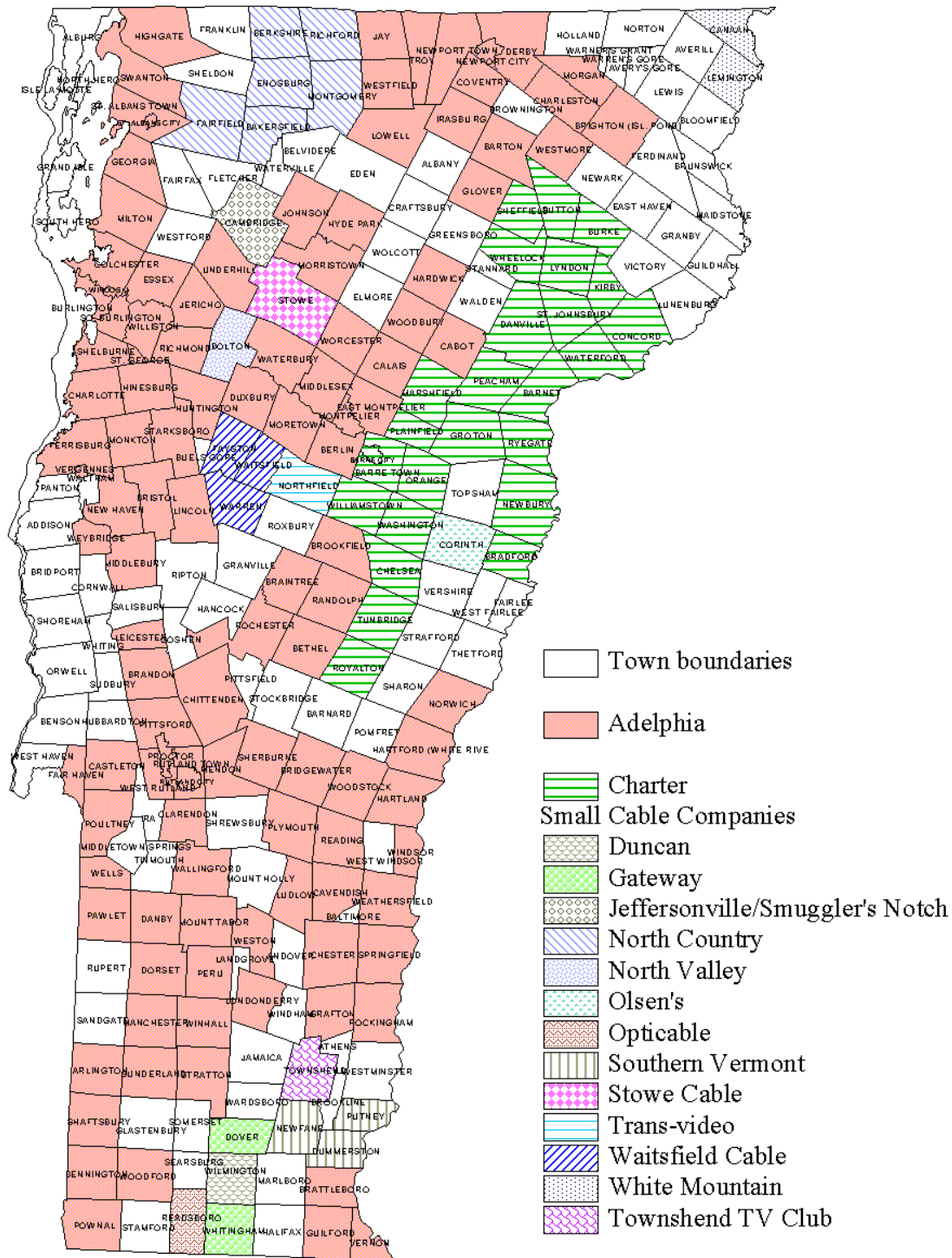
Table 3.4 Vermont Cable TV Companies, Year End 1999, contd.

Company	Subscribers	- - Stations - - Carried	Capacity	Monthly Basic Rate
Helicon Cablevision				
Barre	7,076	75	77	\$14.48
St. Johnsbury	5,975	75	77	\$14.48
Helicon Cablevision Total	13,051			
Jeffersonville Cable TV	322	25	35	\$21.96
North Country Cablevision	867	36	38	\$16.60
North Valley Cable Systems				
Bolton	119	25	30	\$12.60
Limehurst	19	5	13	\$7.35
North Valley Total	138			
Olsen's TV & Radio Repair	40	4	4	\$13.00
Opticable, Inc	130	31	45	\$20.50
Smugglers Notch CATV	424	19	19	\$0.00
Southern Vermont Cable				
Newfane	416	50	60	\$19.95
Putney	415	50	60	\$19.95
West Dummerston	140	50	60	\$19.95
Southern Vermont Total	971			
Stowe Cablevision	926	28	35	\$25.96
Townshend TV Club	250	24	20	\$9.71
Trans-Video, Inc	1,420	48	78	14.91
Waitsfield-Fayston Cable	3,511	42	35	6.95
White Mountain	334	35	36	\$22.75
Total Cable Connections	134,288			

Source: Annual Reports

Table 3.4 Vermont Cable Television Companies, Year End 1999

Cable Companies



4. NATURAL GAS SYSTEMS

A. Southern Vermont Pipeline Proposal

In early 1999 a trio of companies, Iroquois Gas Transmission System, Vermont Energy Park Holdings, and Southern Vermont Natural Gas, publically announced a proposal to build a pipeline from New York state to Bennington, Vermont and then north approximately 60 miles to Rutland, Vermont. In Bennington and Rutland, Vermont Energy Park Holdings planned to build two gas-fired electric generating plants with a combined capacity of approximately 1350 megawatts. No formal filings to the Public Service Board were made by the companies. The Department and the Agency of Natural Resources quickly took cooperative lead roles in coordinating the many state agencies that would be involved in a project of this size. The Department attended numerous community meetings and forums to talk with the public about the announced project and the approval process under Section 248 of Title 30 of the Vermont Statutes Annotated. Many of the communities in the pipelines route opposed the project. By year end 2000, the necessary petition for a Certificate of Public Good under Section 248, had not been filed with the Public Service Board.

B. Vermont Gas Systems

Vermont continues to have a single natural gas distribution company, Vermont Gas Systems, Inc. (VGS) located in Chittenden and Franklin Counties. VGS's transmission line connects to the TransCanada Pipeline at Highgate Springs, and the Company presently serves customers in Chittenden and Franklin Counties. VGS serves approximately 33,000 customers and continues increase its customer base and gas sales by about 3% to 4 % per year (see Table 4.1).

Table 4.1 Vermont Gas Systems - Customers Served 1995 - 1999

	Residential	Commercial	Industrial		Total
			Firm	Interruptible	
1995	23,294	3,406	10	25	26,735
1996	24,138	3,740	10	27	27,915
1997	25,238	3,886	11	31	29,166
1998	26,358	4,000	15	34	30,407
1999	27,265	4,143	0	38	31,446

Source: Vermont Gas Systems Annual Report

VGS provides firm or non-interruptible gas service to the vast majority of its customers. However, approximately 35% of VGS's gas is delivered to approximately three-dozen customers who take interruptible gas service under special contracts.

Beginning in November 1998, VGS introduced a new interruptible transportation service, which will enable gas marketers or large customers to make independent arrangements for gas supply. VGS transports the gas from a designated point of delivery to the end user. In January 1999 VGS proposed to expand its transportation service to include a firm transportation tariff.

Rate and Regulatory Change. In the fall of 1999 VGS filed for and received a rate increase of 12.2%. Recently VGS has faced steeply increasing gas supply costs and has filed for three rate increases in 2000 totaling near 38%. Through a combination of permanent and temporary increases, firm rates increased by 24.4% in November 2000. The remaining request is still pending.

In January 1999, VGS made a filing to the PSB that proposed rate design changes, including the introduction of firm transportation service, along with its interruptible transportation service, paving the way for possible retail choice for all customers.

Gas Supply and Storage. VGS obtains its supply of natural gas primarily from Canadian supplies in Alberta. Historically the majority of the company's natural gas (commodity or the actual molecules of gas) has been supplied by TransCanada Gas Services (TCGS) and transported (capacity or space in the pipe to move the gas) across Canada to the Vermont/ Canadian border via TransCanada Pipeline's (TCPL) system. This TCGS source covered both commodity and firm capacity by providing 21,000 Mcf per day of natural gas at the Vermont/Canada border.

Prior to 1995, VGS' contract with TCGS was 32,000 Mcf per day. In 1995 VGS reduced the contract amount to 21,000 Mcf per day. The lower volumes were supplemented with a gas storage contract that provides an additional 19,000 Mcf per day. Under the storage contract and to optimize transportation capacity on the TCPL gas is injected into underground storage, near Parkway, Ontario, during the summer months and subsequently withdrawn during the winter months. In November 1998, VGS supply portfolio evolved again. VGS further decontracted from TCGS from 21,000 Mcf to 11,000 Mcf. Concurrently, VGS entered into a new supply contract with Renaissance Energy for 8,000 Mcf. The Renaissance contract was entered into after a competitive bid process. VGS also acquired TCPL transportation to move the Renaissance gas across Canada. This marks the first time VGS has held TCPL capacity in its own name.

In addition to decontracting with TCGS, in 1995 VGS also renegotiated its pricing provisions with TCGS. The renegotiated contract accomplished two things. First it immediately lowered the price of natural gas. These lower prices were passed on to customers in the form of a 6.7% rate reduction effective December, 1995. Secondly, it resulted in a market-based commodity formula that will allow VGS to "hedge" its price of firm gas. This ability to hedge is intended to create greater stability in VGS' cost of gas. The Renaissance contract is similarly market-based and can be hedged.

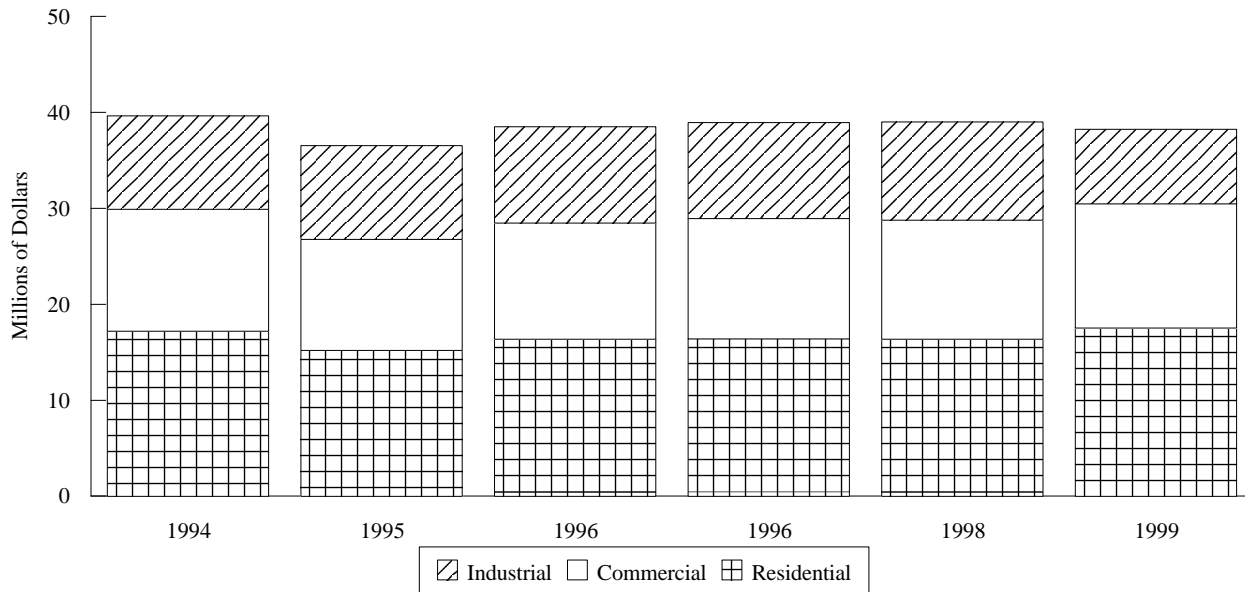
VGS supplements the TCGS and Renaissance supply and the storage service with seasonal peaking supplies. During the period covered by this report, either TCGS or short-term firm peaking capacity from TCPL with the natural gas commodity supplied by any available supplier has provided the peaking services. VGS also has a propane-air plant located in Colchester that is used for peak shaving purposes.

Distribution System Improvements. In 1995, VGS expanded the capacity of its pipeline within Vermont by constructing a second three-mile transmission pipeline that runs parallel to a portion of its existing pipeline. A second extension of this second parallel segment was constructed in 1997. The third phase, which runs to the Canadian border, was completed in 1999.

Energy Efficiency. VGS offers six demand-side management programs for residential and commercial customers. The programs offer financial and technical assistance to customers to help ensure the efficient use of natural gas.

Safety Program. Vermont Gas has an in house training program for the purpose of certifying its own employees in proper gas appliance installation. The company also provides training for contractors who install gas appliances for VGS customers. In August of 1999 Federal Regulations (490 CFR 192 n) were amended to require pipeline operators to: develop and maintain a written qualification program for individuals performing covered tasks on pipeline facilities. The purpose of the new regulations is to ensure a qualified work force and to reduce the probability and consequence of incidents caused by human error. The written qualification program is mandated to be completed by April 2001 and operator compliance is expected by October 2002. VGS continues to be recognized both regionally and nationally for its safety efforts and focus.

**Table 4.2 Vermont Gas: Revenue from Ultimate Customers,
1994 - 1999**



Revenue from Ultimate Customers, by Customer Class

	1994	1995	1996	1996	1998	1999
Residential	\$17,230,068	\$15,214,549	\$16,392,693	\$16,429,530	\$16,392,105	\$17,549,866
Commercial	\$12,716,770	\$11,588,561	\$12,104,662	\$12,544,813	\$12,415,756	\$12,948,875
Industrial	\$9,681,117	\$9,743,615	\$10,011,002	\$9,969,347	\$10,212,094	\$7,731,001
Total	\$39,627,955	\$36,546,725	\$38,508,357	\$38,943,690	\$39,019,955	\$38,229,742

Percentage of Revenue from Ultimate Customers

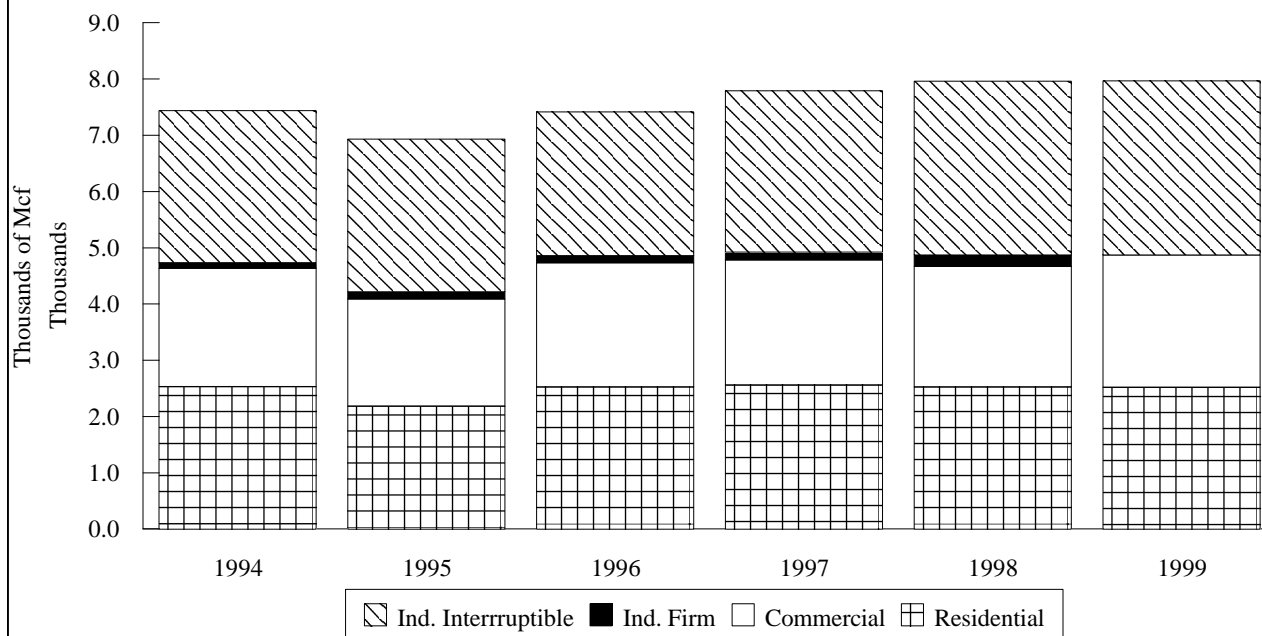
	1994	1995	1996	1996	1998	1999
Residential	43.5%	41.6%	42.6%	42.2%	42.0%	45.9%
Commercial	32.1%	31.7%	31.4%	32.2%	31.8%	33.9%
Industrial	24.4%	26.7%	26.0%	25.6%	26.2%	20.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Yr. End 9/30/97

Source: Annual Report

NOTE: VGS redesigned its rate classes in late 1998. Beginning in 1999 Firm Industrial Customers are included in the Commercial Category. Further, VGS began offering interruptible transportation services in late 1998. Mcf volumes and revenues from interruptible transportation service are included in the interruptible industrial category.

Table 4.3 Vermont Gas: Sales to Ultimate Customers by Customer Class, 1994 - 1999



Sales to Ultimate Customers by Customer Class (Mcf)

	1994	1995	1996	1997	1998	1999
Residential	2,534,187	2,187,025	2,529,423	2,563,071	2,529,035	2,524,514
Commercial	2,102,659	1,904,323	2,206,449	2,225,279	2,144,707	2,353,228
Ind. Firm	105,715	132,514	131,270	142,373	204,207	0
Ind. Interruptible	2,695,785	2,710,992	2,550,845	2,860,129	3,082,245	3,087,214
Total	7,438,346	6,934,854	7,417,987	7,790,852	7,960,194	7,964,956

Percentage of Sales to Ultimate Customers by Customer Class

	1994	1995	1996	1997	1998	1999
Residential	34.1%	31.5%	34.1%	32.9%	31.8%	31.7%
Commercial	28.3%	27.5%	29.7%	28.6%	26.9%	29.5%
Ind. Firm	1.4%	1.9%	1.8%	1.8%	2.6%	0.0%
Ind. Interruptible	36.2%	39.1%	34.4%	36.7%	38.7%	38.8%
Total	100%	100%	100%	100%	100%	100%

Yr. End 9/30/99

Source: Annual Report

NOTE: VGS redesigned its rate classes in late 1998. Beginning in 1999 Firm Industrial Customers are included in the Commercial Category. Further, VGS began offering interruptible transportation services in late 1998. Mcf volumes and revenues from interruptible transportation service are included in the interruptible industrial category.

Table 4.4 Vermont Gas: Condensed Balance Sheets and Operating Statements, 1998 - 1999

Condensed Balance Sheets 1998 - 1999

	Total Utility Plant	Less: Depreciation & Amortization	Net Utility Plant	Other Property & Invstmt	Current & Accrued Assets	Deferred Debts	Total Assets & Other Debits	Proprietary Capital	Long - Term Debt	Current & Accrued Liabilities	Deferred Income Tax	Deferred Credits	Total Liabilities & Other Credits
1999	\$74,969,998	(\$24,466,195)	\$50,503,803	\$347,697	\$7,227,327	\$2,982,799	\$61,061,626	\$26,903,719	\$10,000,000	\$20,124,698	\$3,932,880	\$100,329	\$61,061,626
1998	\$67,413,898	(\$22,151,923)	\$45,261,975	\$347,697	\$6,092,894	\$2,396,016	\$54,098,582	\$25,526,195	\$10,000,000	\$14,693,471	\$3,690,834	\$188,082	\$54,098,582

Condensed Operating Statements 1998 - 1999

	Total Revenue	Operation Expenses	Maintenance Extenses	Depreciation Expense	Amortization Expense	Property Loss	Non Income Taxes	Federal Income Tax	Other Income Tax	Total Utility Operations Expense	Net Utility Operating Income	Total Other Income	Net Other Income & Deductions	Net Interest Charges	Extraordinary Items after Income	Net Income
1999	\$40,314,317	\$29,386,190	\$558,868	\$2,937,211	\$0	\$0	\$1,479,637	\$1,463,230	\$483,785	\$36,308,921	\$4,005,396	\$42,829	\$0	\$1,127,699	\$0	\$2,920,526
1998	\$40,673,691	\$29,852,904	\$569,636	\$2,682,068	\$0	\$0	\$1,469,505	\$1,632,997	\$433,933	\$36,641,043	\$4,032,648	\$76,845	\$0	\$1,009,097	\$0	\$3,100,396

Yr. End 9/30/97

Source: Annual Report

5. REGULATED WATER AND WASTEWATER COMPANIES

The Department and the Board regulate only privately owned water companies. Vermont's small private water companies continue to struggle to remain viable and to meet the Federal Safe Drinking Water Act (SDWA) of 1974, its 1986 amendments, and its reauthorization in 1996. Many small companies have been taken over by municipalities or fire districts that are able to meet the standards set by SDWA. The most recent to be transferred to a municipality was Montgomery Village Water Works.¹⁴ In 1996 there were 46 private water systems regulated by the Public Service Board; in 1998 the number of private system regulated by the PSB has declined to 40 and in 2000 the number further declined to 38. The number of connections also declined during this period from 4841 in 1998 to 4557 in 2000. During the biennium two new companies became subject to regulation, Bolton Valley Water & Sewer and Northern Star Water.

During the period July 1, 1998 through June 30, 2000, the Department reviewed 5 requests for transfers and or abandonment, and four rate increase requests due to costs associated with compliance with the monitoring requirements established by ANR's Water Supply Division and SDWA rules. The companies either abandoned or transfer are, Pownal Water Company, Rocky Ridge Dev. Water Corp., Starksboro Aqueduct Company, Westfield Water System and Montgomery Village Water Works

Companies receiving rate increase during the biennium are Country Estates Water Company, Forrestbrook Water Corporation, Montgomery Village Water Works and Riverside Water Works, Inc.

In 1993, 30 V.S.A. § 203(6) established requirements that the Public Service Board regulate wastewater companies, other than those owned by a municipality, that are engaged in the collection or disposal of wastewater or domestic sewage and have 750 or more service connections. The one company, Quechee Service Company, that was subject to this statute. was transferred to the Town of Hartford. as a result of a bankruptcy proceeding.

¹⁴The transfer occurred shortly after the close of the biennium, therefore Montgomery Village Water Works has been listed as regulated in Table 5.1

**Table 5.1 Vermont Regulated Water & Wastewater Companies:
Residential Connections and Rate Information as of June 2000**

----- Annual Residential Rates -----

Water Companies	Location	Connections	Flat Rate	Metered Rate
Allen Point Water System	South Hero	12	\$81.00	
Alpine Haven Water System	Montgomery Ctr.	104		\$55/yr. +\$.025/100g
Arlington Water Company	Arlington	458	\$490.80	\$239.87+\$3.97/1000g over 46,300g
Austin, Paul A.	Shelburne	3	\$100.00	
Barnet Water System, Inc.	Barnet	65	\$256.56	\$193.40+\$.0736/100g
Berlin Water Company	Berlin	34	\$400.00	
Bolton Valley Water & Sewer	Bolton	202		69.41+\$.147/100g
Bolton Water Supply System	Bolton	18	\$63.00	
Bonnell Water System	Newport	6	\$170.00	
Bouchard Water System	Swanton	10	\$50.00	
Bromley Water Company, Inc.	Bromley	298	\$177.25	
Colonial Estates Water Company	Rutland	45		\$97 + \$.225/cf
Country Estates Water Company	Ascutney	188		\$173.87+\$1.0335/100cf
Craig, A.Z. Water Company	Sutton	7	\$16.00	
Crystal Springs Water Company	E. Montpelier	120	\$493.08	\$375+\$.143/100g
East Haven Sewage and Water	Essex Junction	31	\$67.00	
Eastview Water Company, Inc.	E. Montpelier	1	\$100.00	
Foothills Water System	Jericho	68	\$486.60	
Forrestbrook Water Corp.	Forest Dale	42		\$266 + \$.04/cf
J & F Water Company	Colchester Ctr.	5		\$15/1000cf+\$1.05/100g over 1000g
Jay Utility Company, Inc.	Jay	None		
Krohn, John F.	Milton	3	\$180.00	
L&B Water Works	Wheelock	20	\$60.00	
Lake Bomoseen	Castleton	30	\$123.00	
Middle Road Utility Co., Inc.	Colchester	None		
Montgomery Village Water Works*	Montgomery	85	\$200.00	
Mountain Water Company	Warren	625		\$104 + Flow Design
Northern Star Water	Burke	177		\$98 or \$63.47+\$2.76014/1000g
Pines Development Water System	Morrisville	9		\$15 + Village Rates
Riverside Water Works, Inc.	Beecher Falls	212	\$100.00	\$78+@.1825/1000g
Rolling Meadows Homeowners Ass	Newfane	26	\$200.00	
Smugglers Notch Water Company	Jeffersonville	343	\$112.00	
Stratton Mountain Water Co., Inc.	Stratton/Windhall	620	varies	
Sunshine Water Company	Rutland	32	\$267.00	\$157+\$.0842/100g
Vermont Water Utilities, Inc.	Georgia	51		\$158.16+\$.193/100g to 18,500g
Westminster Aqueduct Society	Westminster	51	\$90.00	
Willoughby Lake Water Works	Willoughby Lake	16	\$25/summer	
Woodstock Aqueduct Company	Woodstock	540		\$124.60+\$.01615/cf over 301cf
Total Water Connections		4,557		

*pending transfer to municipality

Source: DPS Economics Division